

40
W O
8428

~~OFFICIAL COPY~~

[Crown copyright reserved.]

[Issued with Army Orders for January, 1923.]

GUN DRILL

FOR - 7. 25. 1923

18-POUNDER Q.F. GUN, MARKS
I to II.

CARRIAGES, MARKS I* to II.
(With Supplement for Mark I Carriage.)

1923.



LONDON:
PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

To be purchased through any Bookseller or directly from
H.M. STATIONERY OFFICE at the following addresses:
IMPERIAL HOUSE, KINGWAY, LONDON, W.C. 2, and 38, ABINGDON STREET, LONDON, S.W. 8;
27, PETER STREET, MANCHESTER; 1, ST. ANDREW'S CRESCENT, CARDIFF;
or 28, FORTH STREET, EDINBURGH.

1923.

G.D. 47.

Price 3*l.* net.

CONTRACTORS TO THE ADMIRALTY, WAR OFFICE & COLONIAL GOVERNMENTS

THE
**ALEXANDER
CLARK**
CO LTD



125-126, FENCHURCH ST., LONDON, E.C. 2.

*MANUFACTURING GOLDSMITHS, SILVERSMITHS,
ELECTRO-PLATERS, MEDALLISTS & CUTLERS.*

THE COMPANY
SPECIALIZE IN THE
MANUFACTURE OF
CUPS & TROPHIES,
PRESENTATION
PLATE, SPORTS
PRIZES, MEDALS
& AWARDS, MESS
PLATE & CUTLERY.

FULL TRADE
DISCOUNTS
ARE GRANTED
— TO ALL —
GOVERNMENT
DEPARTMENTS
— AND —
REGIMENTS.

THE COMPANY
— WOULD —
APPRECIATE THE
FAVOUR OF A VISIT
TO THEIR LONDON
SHOW ROOMS
— WHICH ARE —
THE LARGEST IN
— LONDON —

CATALOGUES FREE UPON APPLICATION.

JAMES ST. WORKS,
ST. PAUL'S,
BIRMINGHAM.

MANUFACTORIES—
MITRE WORKS,
MITRE ST.,
LONDON.

WELBECK WORKS,
HILL ST.,
SHEFFIELD.

Your Unofficial Health

Health in the Services is diagnosed with brevity and detachment—you are “fit” or you are “sick.” The Halfway House of Health, in which so many live, is officially non-existent.

At home or abroad the *feeling* of good health is enjoyed by many thousands of Service men who take, first thing every morning, a glass of water sparkling with a “dash” of ENO’s “Fruit Salt.” Very pleasant to take and forms no harmful “habit.”

ENO’S
“FRUIT SALT”
TRADE MARK

**1/9 HANDY
SIZE.**

The Standard
size at 3/- is
also obtain-
able.

Of all Chemists and Canteens.

J. C. ENO, LTD., LONDON, S.E.



EVERYTHING MILITARY FOR OFFICERS & OTHER RANKS



MINIATURE MEDALS.

Mons Star 1/6 Victory 1/6

General Service (Silver) 3/-

M.C. 6/- O.B.E. 6/6

M.B.E. 6/-

D.S.O. 27/6 & 35/-

Fitted with Ribands and
Brooch Bar 6d. per medal
extra.

Rosettes 3d. Oakleaf 4d. 1914 Bar 9d.

Any Miniature Medal or Order Supplied.

RANK BADGES.

Stars and Crowns.



Gilt 1/- per pair

Khaki 1/- "

Bronze 9d. "

Mess Uniform } Prices on
Service " } application

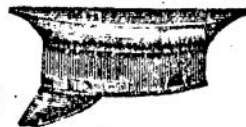
Whipcord Caps 17/-

Serge " 12/6

Blue Dress " 21/-

Gilt Badge 4/6 Bronze 2/6

Bronze Collar Badges 3/6 pair



SHIRLEY BROOKS, Ltd.,—Military Tailors,

41-42, Artillery Place, WOOLWICH.

Gun Laying Instruction

with the

B.S.A. Air Rifle Laying Teacher.

The B.S.A. Laying Teacher, many of which are used by the Admiralty, consists of an Air Rifle, hand loaded with mechanical firing mechanism, elevating and lateral adjustment screws, and complete with mount for attachment to heavy or light artillery.

It enables the instructor to give perfect laying teaching *at any time* without using the expensive gun ammunition, the only cost incurred being the small .177 bore Lead Pellets. The Rifle is accurate, clean in use, practically noiseless, and will last a lifetime. Firing is carried out in the usual manner with the gun firing lever which is connected to the mechanical firing mechanism of the Teacher.

Fully detailed information will be sent post free on application. Also particulars of B.S.A. .303 and .22 Match Rifles, Shot Guns and Air Rifles.

B.S.A. GUNS LTD., BIRMINGHAM.
Prop.: The Birmingham Small Arms Co., Ltd.



The following is a partial list of military publications. A complete list is given each month in the Army List Advertiser.

MILITARY BOOKS

Published by



Authority.

LONDON:
PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

To be purchased through any Bookseller or directly from
H.M. STATIONERY OFFICE at the following addresses:
IMPERIAL HOUSE, KINGSWAY, LONDON, W.C. 2, and 28, ABINGDON STREET, LONDON, S.W.
ST. PETER STREET, MANCHESTER; 1, ST. ANDREW'S CRESCENT, CARDIFF;
or 120, GEORGE STREET, EDINBURGH.

(The prices in brackets are those at which the books are obtainable, post free, by Officers, Non-Commissioned Officers, and Men, in the manner prescribed by Appendix XXIII. of The King's Regulations and Orders for the Army, 1912. Applications should be made on Army Form L 1372, and addressed to the Secretary, War Office, S.W. 1.)

- Abyssinia. Expedition to. 2 vols. and maps. 1870. Half Morocco, 25 6s. Cloth, 24 4s.
- Accounts. Army. See FINANCIAL INSTRUCTIONS.
- Africa. Notes on the Geology of the Continent of. 1906. 3s. (2s. 8d.)
- Aldershot Command. Standing Orders for. 1921. 6s. (4s. 9d.)
- Allowances. Army. Regulations. 1914. (Reprinted 1918.) 9d. (9d.)
Do. Amendments, April 1921. 1d. 2d.)
- See also FIELD ALLOWANCE, PAY OF OFFICERS, and SEPARATION ALLOWANCE.
- Amharic Language. Short Manual of the. With Vocabulary. 1910. 6s. (4s.)
- Ammunition for Q.F. 4.5-inch Howitzer. Notes on. 4th edition, 1920. (With Diagrams.) 1s. (11d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

- Austria. Campaign of 1866 Against.** See GERMANY.
- Ballistics.** Handbook of (translated from the 2nd German Edition). Vol. I. Exterior Ballistics. 30s. (23s. 3d.)
- Barracks. Care of.** Instruction in. 1901. 9d. (7d.)
- Bashforth Chronograph.** Experiments with, to determine the resistance of the air to the motion of projectiles. Report on. 1870. 1s. (1s. 1d.)
- Bermuda Militia Artillery.** Regulations. 1914. 9d. (9d.)
- Bicycles (Pedal) Military.** Handbook on. 1922. 1d. (1½d.)
- B.L. 6-inch 26 cwt. Mark I Howitzer on Mark I Travelling Carriage (Land Service) 1912.** 3s. (2s. 7d.)
- Bounty to Soldiers.** See FIELD ALLOWANCE.
- British Minor Expeditions, 1746 to 1814.** 1884. 2s. 6d. (2s. 2d.)
- Cadet List.** } See TERRITORIAL FORCE.
Cadet Units. }
- Cadets of the Senior and Junior Divisions, Officers' Training Corps.** Report on the Examination for Certificates "A" and "B" held in Nov. 1920. 1s. 6d. (1s. 4d.)
- Cape of Good Hope Reconnaissance Survey, 1903-1911.** Report on the. 1914. 1s. 6d. (1s. 1d.)
- Casualty Lists, Weekly.** War Office and Air Ministry. No. 1. Aug. 7, 1917, to No. 83, March 4, 1919. Each 3d. (4d.)
- Cavalry. Technical Operations; Cavalry in an Army; Cavalry in Battle.** Translated from the French of Captain Loir, XX Army Corps Staff. With a Preface by General Langlois. With Maps. 3s. 6d. (3s. 2d.)
- Cavalry of the Line. Peace Organization of the; and Arrangements for Mobilization consequent on the establishment of Cavalry Depôts.** (Special A.O., July 19, 1909). 1d. (2d.)
- Cavalry Training.** 1921. Vol. I. Training. Provisional. 2s. (1s. 9d.)
Do. Provisional. Vol. II. 1920. 9d. (10d.)
See also ITALIAN CAVALRY.
- Ceremonial.** 1912. (Reprinted 1919.) 6d. (7d.)
Do. Provisional Amendments, June, 1914. (With Plates and Key.) (Reprinted 1919). 2d. (3d.)
- Chemistry. Practical. Quantitative and Qualitative.** A Course of. 1914. 5s. (4s. 2d.)
- Chemists of the Research Department.** Rules and Regulations specially relating to. 1913. 1d. (2d.)
- Chiropody. Manual of.** 2d. (4d.)
- Clothing and Necessaries (including Materials).** Priced Vocabulary of. 1920. Provisional. 1s. (11d.)
Do. Amendments, Jan., April, Aug., Nov. 1916; Feb., April, Dec. 1917; March, Nov. 1918; Jan., Nov. 1919; Jan. 1920. Each 1d. (2d.); March 1921. 2d. (3d.); Sept. 1921. 3d. (4d.); Feb. 1922. 1d. (2d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Clothing Regulations:—

- Part I. Regular Forces. April 1922. 1s. (1½d.)
- Do. Amendments, Aug. 1922. 1d. (1½d.)
- Part II. Special Reserve. 1914. 3d. (5d.)
- Colchester Garrison. Standing Orders. 1913. 9d. (9d.)
- Commands, Military, and Staff in the United Kingdom. Reorganization of. (Special A.O., Jan. 6, 1905, with alterations to date. Issued with Special A.O., Nov. 11, 1907). 3d. (3d.)
- Company Training. Notes on. For the use of the Special Reserve, Territorial Force, and newly raised Units of the Regular Army. Sept. 1914. 1d. (2d.)
- Constitution, the German. (Edition without Notes). 6d. (8d.)
- Cooking and Dietary. Manual of Military. Illustrated. 1918. 6d (7d.)
- Co-ordination of Voluntary Effort resulting from the formation of the D.G.V.O. Department. A National Scheme of:—
Appendices III and IV.—A Detailed Report of the Work of the Recognized Associations. 1920. 6s. (4s. 1d.)
(Appendices I, and II., with the Report of the Director-General was published as [Cmd. 173] of Session 1919.) 2d. (3d.)
- Cost Accounting Scheme for 1919-20. Provisional Instructions relating to:—
Part I. For the Guidance of Staff, Regimental, and Departmental Officers at Home Stations. 3d. (5d.)
- Courses of Instruction. 1922-23. 9d. (9d.)
Do. Supplement. April 1922. 1d, 1½d.
Do. Amendment. May 1922. 1d. (1½d.)
Do. Supplement. Army School of Hygiene. Issued with A.O. for July 1922. 1d. (1½d.)
- Crews of War Department Vessels and Boats at Home Stations. Regulations for the Appointment, Pay, and Promotion of. 1911. 2d. (2d.)
- Cyclist Training. 1917. Provisional. 6d. (6d.); Amendments, Aug. 1918 1d. (2d.)
- Demobilization. Army. Regulations:—
Part I. With Diagram showing Method of Dispersal; and Map of Dispersal Stations and Areas in the United Kingdom. 1s. 6d. (1s. 6d.)
Part II. With Plan of Hutment Lines, showing suggested Appropriation of Buildings for use as a Dispersal Station; and Map of Dispersal Stations and Areas in the United Kingdom. 6d. (7d.)
Part III.
Do. Chap. XXIV. Labour Units. 2d. (2½d.)
Do. Chap. XXV. Part I. Dispersal of Officers of the Army Chaplain's Department. 1d. (1½d.)
Do. Chap. XXV. Part II. Ordnance Services. 2d. (2½d.)
Do. Chap. XXVI. Q.M.A.A.C. 2d. (2½d.)
Do. Chap. XXVII. Animals. 3d. (3½d.)
Do. Chap. XXXII. The Volunteer Force. 2d. (2½d.)
Do. Chap. XXXIII. British West Indies Contingents. 2d. (2½d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Demobilization—continued.

Addenda to Chap. V. Special Registration. 1d. (1½d.)

Amendments:—

To Parts I and II. 1d. (2d.)

Nos. 3 to 25. Each 1d. (2d.)

Despatches, Military. See WAR OF 1914-18.

Disabled and Discharged Soldiers in France. The Treatment and Training of. Report by Sir Henry Norman, Bart., M.P., Liaison Officer of the Ministry of Munitions to the French Ministry of Inventions. 4d. (5d.)

Diseases, Medical, in the Tropical and Sub-Tropical War Areas. Memoranda on. 1919. (With Plates, Diagrams, Text-figures, and Index.) (Out of print)

Drainage Manual. For the use of Royal Engineer Officers, and other persons, employed on the Construction and Maintenance of Drainage Works in connection with War Department Buildings in the United Kingdom or in similar climates. 1921. (Illustrated). 5s. (4s. 2d.)

Drawing Plates. Military:—

Attack of Dufur's Countermines or 2nd plate of Mines; Carnot's First System; Detached Forts; Concealed Defences, 1, 2, 3, 4; Printing Plate, A, B, C, &c.; Detail Plate, No. 1; Do. No. 2; Neighbourhood of Woolwich; Village and Surrounding Ground. Each 2d. (2d.)

Attack of Fortress—Preliminary Operations; Do., Distant Attack; Do., Close Attack; Neighbourhood of Metz. Each 3d. (3d.)

Neighbourhood of Woolwich, Southern Side. 1s. 6d. (1s. 3d.)

Woods and Villages. Six plates. Each 6d. (5d.)

Drill Book. R.A.S.C. (Issued with A.O. for Oct. 1920.) 3d. (3d.)

Dynamics. Notes on. 2nd. Edition 1908. 3s. (3s. 3d.)

Education, Conference, Imperial. Convened, June 11 and 12, 1919, by the Chief of the Imperial General Staff. 6d. (7d.)

Educational Training. Part I. General Principles. 2d. (3d.)

Egypt. British Force in. Standing Orders. 1912. 1s. (1½d.)

Egypt. Campaign of 1882 in. Military History. With Case of Maps. Condensed Edition. 1908. 3s. 6d. (2s. 10d.)

Egyptian Expeditionary Force. A brief record of the Advance of the 1919. 6s. (6s. 1d.)

Electrical Communications. Fixed. Instructions as to. 1912. (Reprinted, with Amendments, 1916). 4d. (5d.)

Electricity. Notes on. 1920. 3s. (2s. 6d.)

Electric Light Apparatus. Defence. Instructions for the working of. 1915. 1d. (2d.)

Electric Light and Power Work of the German Army. Notes on. 1920. 1s. 6d. (1s. 4d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

- Encounter. The Battle of.** By Hans von Klesling. Part I. Practical. Translated. 1s. 6d. (1s. 6d.)
- Energy Expenditure of the Infantry Recruit in Training.** 3s. (2s. 6d.)
- Engineer Services Regulations. Peace:—**
 Part I. 1910. (Reprinted, with Amendments published up to May 1, 1915). 1s. (1s.)
 Amendments issued with A.O. for July, 1922 1d. (1½d.)
 Part II. 1911. Technical Treatises. (Reprinted with Amendments up to May 1, 1915) 9d. (8d.)
 Part II. 1920. Technical Treatises. 4d. (5d.)
- Engineer Training.** 1922. Provisional. 9d. (9d.)
- Engineering. Field. Manual of.** 1911. 9d. (9d.)
- Engineering. Military:—**
 Part I. Field Defences. 1908. 1s. 6d. (1s. 6d.)
 Part II. Attack and Defence of Fortresses. 1910. 9d. (11d.)
 Part III. Bridging, 1921. 3s. 6d. (2s. 9d.)
 Part IIIa. Military Bridging—General Principles and Materials. 1913. 1s. (11d.); Index to. 1d. (2d.)
 Part IIIb. Do.—Bridges. 1914. (Reprinted 1918.) 2s. (1s. 10d.)
 Part IV. Mining and Demolitions. 1910. (Reprinted, 1915, with Amendments to 1912 inclusive.) 1s. (11d.)
 Part V. Miscellaneous. 1914. 1s. (1s. 1d.)
 Part VI. Military Railways. (Out of print)
- Entrance. Army. Regulations:—**
R.M. Academy. Admission to, and for First Appointments therefrom to the Royal Artillery and Royal Engineers. 1920. 2d. (3d.)
- R.M. College.** Admission to, and for First Appointments therefrom to the Regular Army. 1920. 3d. (4d.)
- Military Forces of the Self-governing Dominions and Crown Colonies.** Officers of the. 1912. 1d. (2d.)
- Militia and Imperial Yeomanry.** Regulations under which Commissions in the Regular Forces may be obtained by Officers of. 1907. 1d. (2d.)
- Royal Army Veterinary Corps.** Regulations for Admission to the. 1d. (2d.)
- Special Reserve of Officers, Malta Militia, Bermuda Militia, Channel Islands Militia, and Territorial Force.** Officers of the. 1920. 1d. (1½d.)
- Staff College (Camberley.)** 1d. (2d.)
- University Candidates.** Provisional. 1920. 1d. (2d.)
- Warrant Officers and N.C.Os. of the Regular Army.** Combatant Commissions as Second Lieutenants. (Under revision.)

See also MEDICAL CORPS.

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Examination Papers:—

Entrance: R.M. Academy; R.M. College; Indian Army College, Quetta. Cadetships in the Royal Navy (Special Entry). March 1918. 6d. (8d.)

Entrance: R.M. Academy; R.M. College; Royal Air Force. Nov. 1919. 2s. (1s. 7d.)

Entrance: R.M. Academy; R.M. College; Royal Air Force; Supplementary First Appointments in the Royal Marines. Cadetships in the Royal Navy (Special Entry). June 1920. 2s. (1s. 8d.)

Entrance: R.M. Academy; R.M. College; Royal Air Force. Nov. 1920. 2s. (1s. 9d.)

Entrance: R.M. Academy, Woolwich; R.M. College, Sandhurst; Royal Air Force; Supplementary First Appointments in Royal Marines; Cadetships in the Royal Navy (Special Entry); Indian Police Force; Police Forces of Straits Settlements; the Federated Malay States, and the Unfederated Malay States. June and July 1921. 3s. 6d. (2s. 11d.)

Entrance: R.M. Academy, Woolwich; R.M. College, Sandhurst; Royal Air Force. Nov. 1921. 2s. (1s. 9d.)

Entrance: R.M. Academy, Woolwich; R.M. College, Sandhurst; Royal Air Force; Royal Marines; Royal Navy Cadets; Indian Police Force and Ceylon and Far Eastern Police Forces. June and July 1922. 1s. 6d. (1s. 4d.)

R.M. Academy, Fourth Class; R.M. College, Fourth, 1s. Third, and Second Divisions. July, Dec. 1904. Each 1s. June 1905. 1s. (1s. 2d.)

R.M. Academy, Fourth Class; R.M. College, Senior Division. Dec. 1905; June, Dec. 1906; July, Dec. 1907. Each 1s.

Staff College. Admission. July 1911; June-July 1912; June-July 1913. Each 1s. (1s. 1d.)

Militia, Imperial Yeomanry, and University Candidates. Oct. 1908. 1s. (11d.)

Officers for Promotion. Dec. 1912; May and Dec. 1913; April 1914. Each 1s. (1s. 1d.); Oct. 1920. 1s. 6d. (1s. 2d.); April 1921. 1s. (10d.); Oct. 1921. 1s. 6d. (1s. 2d.); April 1922. 1s. 6d. (1s. 4d.)

Officers Training Corps:—

Cadets of the Senior Division. Certificate A. Dec. 1908. 6d. (5d.)

Cadets of the Junior and Senior Divisions. Certificates A and B. Spring of 1909; Nov. 1911; March, Nov. 1912; March 1914. Each 6d. (7d.); March 1921. 2s. 6d. (1s. 10d.); Nov. 1921. 1s. 6d. (1s. 4d.); March 1922. 2s. (1s. 8½d.)

Foreign Languages. Modern. June 1919. 1s. (1s.) Jan. 1920. 3s. (2s. 5d.); June 1920. 2s. (1s. 9d.); Jan. 1921. 3s. (2s. 1d.); June 1921. 5s. (4s.); Jan. 1922. 1s. 6d. (1s. 3d.)

Staff Colleges at Camberley and Quetta. Report on the Examination for Admission. With Examination Papers and Remarks of the Examiners thereon. Feb. and March 1921. 2s. (1s. 10d.). Feb. and March 1922. 2s. 6d. (2s. 3d.)

To-day all the best players use the
BARRIER
BAT *(Registered)*

WHEREVER cricket is played that dynamic driver the BARRIER is found beating the boundary. It is no insincere boast that THE BARRIER IS UNIQUE FOR keeping wickets standing and piling up runs.

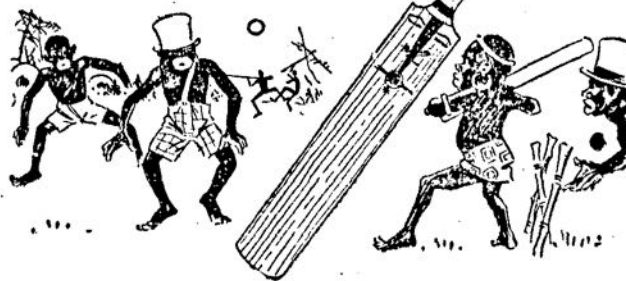
The blade of the BARRIER is the finest quality of willow with an enormous amount of wood in the driving part; it is exquisitely balanced. The blade retains that wood at the edges which minimizes any tendency to give catches to slips. Many bats of other makes being machine-profiled are deficient in this respect.

The handle is a wonderful combination of "snappy power" with no sting. Insist on a BARRIER.

IN THREE GRADES — First Selection ...	37/6
Second Selection... 33/-	Third Selection ... 28/6

Name of nearest dealer and literature free on request.

M.C.C. Company, Ltd. (Box 997), BEDFORD.



40
W.O.
8426

[Crown copyright reserved.]

[Issued with Army Orders for January, 1923.]

GUN DRILL

FOR

18-POUNDER Q.F. GUN, MARKS
I to II.

CARRIAGES, MARKS I* to II.
(With Supplement for Mark I Carriage.)

1923.



LONDON:

PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE.

To be purchased through any Bookseller or directly from
H.M. STATIONERY OFFICE at the following addresses:
IMPERIAL HOUSE, KINGSWAY, LONDON, W.C. 2, and 25, ABINGDON STREET, LONDON, S.W. 1;
37, PETER STREET, MANCHESTER; 1, ST. ANDREW'S CRESCENT, CARDIFF,
or 23, FORTH STREET, EDINBURGH.

1923.

Price 3d. net.

By Command of the Army Council,

THE WAR OFFICE,
January, 1923.

H. J. Creedy
28034

CONTENTS.

	PAGE
GENERAL INSTRUCTIONS	3
Chapter	
I.—General Duties	5
II.—Gun Drill	21
III.—Laying and Fuze Setting Tests	52
IV.—Sight Tests	59
V.—Care of Equipment.	65
APPENDIX—Carriage of Stores	78, 80
SUPPLEMENT	86

GENERAL INSTRUCTIONS.

Practical instruction in the equipment should be given to each recruit before any attempt is made to instruct him in gun drill. In teaching the duties of each man at the gun, the instructor should try to do so by reasoning rather than by a long explanation in words. By means of questions he should try to draw from the recruit the correct answers as to his duties, being careful to lead the man's mind into the desired channel of thought. Should this attempt fail, the instructor should give a demonstration emphasizing the points the recruit has not grasped. Such demonstrations should deal with the work of each man in the detachment; and all men under instruction should, in turn, carry out the work of each particular man.

Instruction in gun drill should be given as soon as the men are conversant with all parts of the equipment, and can handle in the best and quickest manner each of the working parts of the gun. Once the work of each man has been thoroughly mastered, it should not take long for the recruit to learn the actual drill.

It is most important that a marked distinction should be drawn between instruction and drill.

During the former the language used should be as simple as possible, and the meaning of all technical terms which are

necessary must be carefully explained. A conversational tone should be adopted and in no circumstances whatever should anything in the nature of long quotations from drill books be allowed. The men should be permitted to assume an easy attitude and their interest should not be allowed to flag. They should be encouraged to ask questions.

At drill, on the contrary, rigid discipline must be maintained, orders must be clear and decisive, and the detachments made to work steadily, smartly and rapidly. At the same time the utmost accuracy is essential and any deviations from the methods laid down must at once be checked.

CHAPTER I.—GENERAL DUTIES.

This chapter summarizes the duties of the section commander and each man in the detachment. It is only intended as a guide for the instructor, who should use his own words in explaining the various duties to the men.

The detachment is composed of ten men. The service of the gun is divided between them as follows :—

1	...	...	...	...	In command.
2	...	...	...	...	The breech.
2 and 3	...	...	...	...	The sights.
4	...	...	...	...	The loading.
5 and 6	...	...	...	...	The ammunition.
7, 8 and 9	...	...	...	...	The reserves and assist with ammunition.
10	...	...	...	...	The coverer and second in command.

The duties of the section commander and of each man are as follows :—

DUTIES OF SECTION COMMANDER.

NOTE.—On service it may not always be possible for section commanders to be with their sections in action, and it may be inadvisable to withdraw a No. 1 from his gun to act as section commander. In this case such of the following duties as affect both guns will be performed by the G.P.O. (gun position officer) and such as affect individual guns by the Nos. 1.

1. He COMMANDS his section and is responsible for the serviceability of its EQUIPMENT and the correctness of its DRILL.

2. He places himself where he can best see and hear the B.C. or G.P.O., and will only move about when necessary for the supervision of his section. In ordinary circumstances he should be on the flank of his section nearest the command post.

3. He will acknowledge orders from the command post by saluting with the hand nearest the G.P.O., finishing with the hand vertically above the head.

He only passes ORDERS when he sees that his Nos. 1 or the neighbouring section commander have failed to acknowledge.

4. He supervises the TESTING and ADJUSTMENT of the sights of his section.

5. He keeps a RECORD of the MUZZLE VELOCITY, DROOP AND JUMP of his guns and also of their ZERO LINE READINGS to the AUXILIARY AIMING POINT and BATTERY PICKET. He will not keep any record of orders during a shoot.

6. He reports the CREST ANGLES to the G.P.O. when ordered to do so.

7. He is RESPONSIBLE that, before fire is opened on any target, his guns are layed in the DIRECTION ORDERED.

This is best done not by inspection of the sights, but by comparing the line of his two guns and the flank guns of the neighbouring sections by looking along the line of each with reference to some distant object either in front or rear.

8. He CONTROLS his section in action.

This control is best carried out by watching and listening rather than by personal inspection of sights, &c., *e.g.*, as regards deflection corrections, observation of which hand is used by 3, will ensure deflections being put on in the correct direction; as regards fuze setting comparison of the fuze lengths called out will expose any considerable error.

9. When his section is RANGING, if one gun miss-fires, he will fire BOTH ELEVATIONS from the other gun, the higher elevation first.

10. At BATTERY FIRE he will report to the G.P.O. when one of his guns MISSES ITS TURN.

11. He will REPORT to the G.P.O. when either of his guns goes OUT OF ACTION or when he finds that an ERROR has been made which is likely to have AFFECTED THE SHOOTING.

DUTIES OF 1.

1. He COMMANDS and is responsible for the entire service of his gun.

2. He gives the WORDS OF COMMAND detailed for him in Chapter II, and repeats all ORDERS affecting his detachment which have not been heard by the men concerned. His orders must be given clearly, but no louder than is necessary to enable his detachment to hear.

He assists in passing orders down the battery when necessary.

He acknowledges all orders by saluting. He will salute with the hand nearest the gun position officer, finishing with the hand vertically above the head.

3. He is responsible :—

- (i) That the BUFFER is properly filled.
- (ii) That the RECUPERATOR is correctly charged with liquid and air.
- (iii) That the GLANDS, PISTON ROD REGULATING GEAR, and SECURING NUTS are correct.
- (iv) That the PROTRUSION of the STRIKER is correct.
- (v) That the SIGHTS are tested. This is done under the supervision of the section commander.
- (vi) That the MUZZLE VELOCITY of the gun is correctly set on the elevation and fuze indicators.

To ascertain if the BUFFER is properly filled, the gun is elevated to 10 degrees, and plug N removed ; oil should then appear.

To ascertain if the RECUPERATOR is CORRECTLY CHARGED, screw in the adapter at L, outer end blanked. Screw the gauge into the adapter. Open valve M and the gauge should register 700 lbs. a sq. in.

4. He selects the GUN PLATFORM, which should be on firm and level ground. If this cannot be found and time permits, the higher wheel is dug in. Failing this, he orders 3 to adjust the traversing gear so that the breech is about two degrees towards the higher wheel.

5. On coming into action he mans the RIGHT GUN-WHEEL. When manning wheels, the spokes should be grasped as near the felloes as possible.

6. He ascertains, when ordered, the CREST ANGLE and reports it to the section commander.

7. He orders the deflection to correct for difference in **LEVEL OF WHEELS**. The difference in level of wheels in degrees, multiplied by the elevation in degrees gives the deflection in minutes required towards the higher wheel. He must not alter this deflection after his gun has once opened fire on this line.

When a switch is made to a target at a different range, or when giving parallel lines from a named gun, he must bear in mind the amount of deflection already on the sight for difference in level of wheels when making the new calculation.

8. He selects the auxiliary aiming point and records on the slate the **ZERO LINE** angles from the auxiliary aiming point and battery picket.

9. Before the gun is layed on a **NEW TARGET** he gauges the line of fire and throws the gun into the line.

He will not touch the traversing lever after the gun has been layed. In traversing the gun by means of the trail, the width of the spade corresponds to 12 degrees of traverse.

10. (i) He applies :—

(a) The **POSITION CORRECTION** which, if required, is ordered in the form :—

“ **POSITION CORRECTION**, No....plus (or minus) ...yards)”—and is applied to all elevations ordered but is cancelled when a fresh target is ordered.

(b) Corrections during fire for effect, which are ordered in the form :—

“ No....add (or drop)...yards).”

These are cancelled when a fresh elevation is ordered.

(ii) When laying by field clinometer, he applies the INDEX CORRECTION, if any, of his clinometer and passes corrected elevations to 2.

(iii) When it is probable that the gun will have to fire at longer ranges than the sights are graduated for, 1 will be provided with a gun correction board on which will be shown M.V. corrections to be applied at these extreme ranges.

When time fuzes are issued for which there is no fuze indicator, 1 will be provided with a fuze correction board on which will be shown corrections to fuze lengths required for gain or loss of the M.V. of the gun.

11. When an angle of sight is ordered, he examines the setting of the SIGHT CLINOMETER. He occasionally examines the settings of the ELEVATION and FUZE INDICATORS and DIAL SIGHT.

12. He supervises the preparation and supply of AMMUNITION. As time fuzes deteriorate rapidly if unprotected from damp, only such as are required for immediate use will be uncovered. When one group of ammunition is nearly expended, he reports particulars of the next group to be used.

13. He supervises LOADING. He sees that the caps of the No. 106 fuzes have been removed and occasionally examines the setting of time fuzes.

14. He gives the order to FIRE. The gun will on no account be fired without his order. Before giving this order he sees that the gun is in all respects ready.

15. He is responsible that the INTERVAL between rounds is properly kept as regards his own gun. When a salvo or

quick rate of battery fire (less than 5 seconds interval) is ordered, he extends his right arm above his head as soon as his gun is ready to fire.

16. If the firing lever on the carriage has been damaged he fires the gun by means of the LANYARD.

17. He watches the length of RECOIL. When the black band on the recoil indicator appears, the buffer should be replenished. When the red band appears, it is dangerous to continue firing.

18. If the run-out during the last few inches is either sluggish or violent he adjusts the VALVE ADJUSTING RUN-OUT.

19. He watches the action of the SPADE on recoil and adjusts its support if necessary.

20. When RAPID or PROLONGED FIRING takes place he takes every opportunity of attending to his equipment. If the gun is hot, the bore should be cooled with water when "Stand easy" is ordered.

DUTIES OF 2.

1. He LIMBERS UP and UNLIMBERS in conjunction with 3 and attends the LOWER SHIELD, BRAKE, CLAMPING GEARS, ELEVATION INDICATOR, BREECH MECHANISM and breech and muzzle COVERS.

2. He attends to the BRAKE during travelling. He puts on the brake in action. Before applying the brake he sees that the quick release lever is housed. When in action or on the road, he must be careful not to apply the brake too hard.

3. In action he mans the right GUN-WHEEL, if ordered.

4. He assists 3 to lay by looking along the FINDER of the DIAL SIGHT when the aiming point is to the left or to the rear.

5. Before the elevation indicator can be set, the gun must be depressed by the left elevating hand-wheel. Should the CRADLE CLAMPING GEAR JAM, insert a spanner No. 123 in the lower elevating hand-wheel and gently lever it until the clamping gear is free.

6. He sets the ELEVATION INDICATOR to the elevation ordered by 1, depressing last, closes the breech, removes his right hand from the elevating hand-wheel, and reports "Set" loud enough for 1 and 3 to hear.

7. When laying by FIELD CLINOMETER he sets it at the elevation ordered by 1, and lays for elevation by elevating the gun until the bubble of the field clinometer runs to the front and then depressing until the bubble is in the centre of its run. He sees that the clinometer plane and the base of the clinometer are free from grit or dirt, and that the clinometer is placed on the positioning marks of the plane for each lay.

8. TO OPEN THE BREECH.—He takes hold of the lever with the left hand (pressing the spring with his fingers) and draws it smartly towards him. When the gun is fired he extends his left arm ready to grasp the lever breech mechanism as the gun is running out. As soon as the breech is opened and the cartridge extracted he eases up the extractor so that the next round can slide home into the chamber.

TO CLOSE THE BREECH.—He swings the breech screw smartly round into its position in the gun. He must on no account use the breech screw as a hammer to drive the cartridge home.

9. A dented cartridge case or burred driving band may cause difficulty in closing the breech. If 2 can neither close the breech nor remove the round by means of the extractor, he unscrews the primer with the KEY REMOVING JAMMED CARTRIDGES. He then screws the plug end of the key into the primer hole and uses it to withdraw the cartridge. If the cartridge is tightly jammed, it may be hauled out by means of a lanyard attached to the eye of the key.

10. He oils and cleans the BREECH MECHANISM when necessary during firing.

11. At cease firing the gun is fully depressed by the right hand elevating wheel and fully elevated by the left hand elevating wheel. The lever of the TOP CARRIAGE CLAMPING GEAR is pulled to the rear and the pin inserted in the arc. The CRADLE CLAMPING GEAR is engaged by pulling the lever to the rear.

12. When ordered to travel with a round in the bore, he turns the safety catch to SAFE.

DUTIES OF 3.

1. He LIMBERS UP and UNLIMBERS with 2, and attends to the upper shield. He LAYS and FIRES the gun. He directs 4 when planting AIMING POSTS. He assists 1 to test the SIGHTS.

2. (i) He lays for line and with 2 lays for elevation. He lays for line on the left edge of the aiming point unless otherwise ordered.
- (ii) At INDIRECT LAYING with SIGHT CLINOMETER, he sets the dial sight and sight clinometer at the angles ordered. He elevates the

gun until the bubble of the sight clinometer runs to the front, and depresses until the bubble is nearly central. He lays for line. He depresses the gun until the bubble of the sight clinometer is central and reports "Ready."

- (iii) At INDIRECT LAYING with FIELD CLINOMETER, he sets the dial sight and sight clinometer at the angles ordered. He elevates and then depresses the gun until the bubble of the sight clinometer is in the centre of its run. He lays for line and reports "Ready."
- (iv) At DIRECT LAYING, he sets the open sight at the deflection ordered. He lays for line and elevation and reports "Ready."

If ordered to take the angle of sight he checks his lay and levels the sight clinometer by the micrometer head.

- 3. (i) When setting the dial sight by means of the QUICK RELEASE, he moves the micrometer head through one complete turn to ensure that the teeth have re-engaged correctly.
- (ii) When SETTING a right deflection on the dial sight, he turns the right micrometer head away from him with his right hand; when setting a left deflection he turns the left micrometer head towards himself with his left hand.
- (iii) When READING a left angle on the dial plate he reads the minutes off the left micrometer scale; when reading a right angle he reads the minutes off the right micrometer scale.

- (iv) When SETTING the SIGHT CLINOMETER he turns the top of the micrometer head to the left last to take up backlash.
- (v) When LAYING for ELEVATION he depresses last (top of the hand-wheel to the front) with at least one complete turn of the hand-wheel.
- (vi) The normal positions of his HANDS are as follows :
Right hand on the traversing hand-wheel ; left hand on the elevating hand-wheel.

4. For the first round the pointer of the TRAVERSING GEAR must be within 30 minutes of zero when the lay is completed, except when engaging G.F. or similar targets. After the spade is embedded, the trail will not be moved so long as the line is within the scope of the traversing gear.

If the trail has to be moved in action, he takes off the brake by means of the quick release lever and puts it on again by the same means when the gun is in the correct position.

5. CROSSHEADS are fitted to aiming posts to compensate for lateral movement of the sight. Both crossheads have similar markings and numbers. He notes which corresponding pair of markings are in line and uses them to lay on. He directs 4 to clamp the crossheads low down, so that the bottom of the far one is just visible over the top of the near one.

6. At CHANGE TARGET if the angle is given as "More right (or left)" he turns the micrometer head of the dial sight through the angle ordered. If the angle is given from

zero line, he sets the dial sight at the recorded zero line angle and then turns the micrometer head of the dial sight through the angle ordered.

7. He FIRES the gun. As soon as the gun is layed, he removes his left hand from the elevating hand-wheel, places his right hand on the firing lever and reports "Ready." At the order "Fire" he pulls the lever smartly, releases it at once and replaces his hands in their normal positions. The gun will on no account be fired without the order from 1.

8. The following are the signals used by 3 :—

SIGNAL.	MEANING.
(i) When directing 1 to move the trail :—	
Palm of the hand in the required direction.	Trail right (or left).
Fist clenched	Stop traversing.
(ii) When directing 4 to plant aiming posts :—	
Right arm extended to the right, or left arm extended to the left.	Move in the direction indicated.
Arm dropped	Halt.
Both arms dropped sharply from above the head.	Plant.
Upward or downward motion of the arms with both arms extended laterally.	Raise or lower the crosshead.
Both arms extended above the head and moved laterally in the required direction.	Move head of post in the direction indicated.

SIGNAL.	MEANING.
Both arms extended sharply upwards.	Pick up.
Both arms extended to the front (or rear.)	Move to plant the far aiming post.
Body turned about and both arms extended to the rear (or both arms extended to the front).	Come in.

DUTIES OF 4.

1. He LOADS, plants AIMING POSTS, mans the LEFT GUN-WHEEL and attends to the WAGON BRAKE on the march and when unhooking.

2. On coming into action he prepares AIMING POSTS with crossheads clamped and sticks them in the ground about 5 yards in rear of the gun.

When planting aiming posts he holds the post with the arm bent and elbow against the side at a convenient height, so that it hangs vertically with the point just clear of the ground. He moves to the right or left as directed by 3 until signalled to "Plant," when he allows the post to slip through the fingers until the point touches the ground. He then completes the planting.

3. He LOADS. He places the head of the shell in the bore, being careful not to strike the breech; he supports the round on the back of the left forearm and pushes it home with the palm of the right hand, fingers uppermost, raising his right

hand smartly so that his palm strikes against the upper part of the breech, thus keeping his fingers clear of the breech screw.

He receives another round from 5, fuze leading between the right arm and the body, and holds it ready to load. If there is any delay in the supply of ammunition he will obtain it himself.

If a change of ammunition or fuze setting is ordered, he lays his round down and obtains another round from 5. He should be prepared to re-set the fuze of the former round if necessary. He should be prepared to break the wire and uncap No. 106 fuzes if necessary.

DUTIES OF 5 AND 6.

1. They HOOK IN and UNHOOK the wagon team. They prepare and supply AMMUNITION. 6 attends to the WAGON BRAKE in action and works the FUZE INDICATOR.

2. (i) To UNHOOK the wagon team, 5 detaches the off and 6 the near wheel traces from the swingletrees, the inner traces first. 6 orders "Drive on" and steadies the pole; 5 guides the supporting bar off the pole; 6 lowers the pole.
- (ii) To HOOK IN, 6 holds up the pole near the footboard on the near side and 5 guides the ring of the supporting bar on to the pole. They then attach the wheel traces to the swingletrees, attaching the outer traces first so as to keep the horses in position while they are handling the inner traces.

3. They see that ammunition :—

- (i) Has the PRIMERS tightly screwed home.
- (ii) Is scrupulously CLEAN, especially the driving bands.
- (iii) Is SORTED into groups by nature, weight and fuze.
- (iv) Is PROTECTED from extremes of temperature and from damp.
- (v) Is ISSUED from the group ordered.

They will put on one side shell with burred driving bands, reporting particulars to 1. When opportunity offers the burrs will be removed under instructions from 1.

They will put on one side all cracked or dented cartridge cases, and rounds with the wire or seal of the No. 106 fuze broken, reporting particulars to 1 to enable him to return the rounds.

4. When preparing ammunition with No. 106 FUZE they remove the cartridge clips. No safety cap is to be removed from a No. 106 fuze, or the wire or seal broken until the round is about to be loaded. On removing the cap they examine each fuze to see that the tape is correctly wound and that the ends of the shearing wire are visible. If a No. 106 fuze has become uncapped or the wire or seal is found to be broken, the fuze is to be regarded as dangerous and treated accordingly. A No. 106 fuze with wires or seal broken is on no account to be replaced in a limber or wagon.

5. When preparing SHRAPNEL they remove the cartridge clips and fuze covers. 6 follows up all orders for corrector and elevation on the FUZE INDICATOR, and calls out the fuze setting loud enough for his section commander to hear. He always uses the reader for following up the elevation, and calls out the highest fuze setting visible to the left of the edge of the reader.

(B 27/18)Q

A 4

5 sets fuzes with a fuze key to the settings called by 6. He follows up the settings as they are called, so that he has always a round ready to be fired. 6 assists 5 when he is not using the fuze indicator. They re-set each fuze accurately at safety before replacing the round in the wagon.

6. 5 SUPPLIES ammunition to 4, passing the round between 4's right arm and body, with the fuze leading.

7. In action, except when using No. 106 fuze, they always have six ROUNDS READY for loading. If firing is likely to be continuous this number should be increased. Extra rounds may be withdrawn from the wagon and placed on the ground. If the ground is wet or muddy, ammunition should be placed on a sheet.

When using fuze 106 there will never under any circumstances be more than two rounds with the wire broken, *i.e.*, the round "loaded" and the round "ready." When a specified number of rounds have been ordered the wires of no more than that number will be broken.

8. When one group of ammunition is nearly expended, 6 REPORTS to 1 the particulars of the next group.

DUTIES OF 7, 8 AND 9.

1. IN ACTION they remain at the wagon line.
2. They assist in the SUPPLY of AMMUNITION and are available to replace CASUALTIES.

DUTIES OF 10.

1. He is the COVERER, SECOND in COMMAND of the sub-section and is in charge of the firing battery wagon.
2. IN ACTION he remains at the wagon line in charge of the teams and wagons of his sub-section.

CHAPTER II.—GUN DRILL.

Artillery Training lays down the principles of battery tactics, which vary little with different equipments. This chapter details the orders given and the procedure by which these orders are carried out in batteries armed with the 18-pr. Q.F. gun, Marks I-II.

The procedure must be memorized and strictly adhered to.

The executive order is shown throughout as being given by the section commander, as will normally be the case during training. When orders can be heard throughout the battery they will be acted upon without repetition. Instructors will invariably employ the orders detailed for the section commander, even when drilling a single detachment.

1. POSITIONS AT DETACHMENT REAR.

The detachment falls in two deep, one pace between ranks, 1 on the right of the front rank. 1 is not covered.

When the gun is limbered up, the front rank is three paces in rear of the muzzle, 1 covering the off gun-wheel.

When the gun is in action, the front rank is one pace in rear of the trail eye, 1 covering the right gun-wheel.

2. TO TELL OFF.

Section commander.

"...section—*Tell off.*"

1 numbers himself 1, the right-hand man of the rear rank 2, his front rank man 3, and so on.

3. TO CHANGE ROUND.

Section commander.

"...section—Change round."

1 takes a pace to the rear with his right foot, and a pace to the left with his left foot. The left-hand man of the rear rank takes a pace to the front. At the same time the remainder of the front rank takes a pace to the right and the rear rank a pace to the left.

(The detachment is then again told off.)

4. POSITIONS WHEN MOUNTED.

1 and the coverer on their horses on the left of the leaders of the gun and firing battery wagon, respectively; 2 and 3 on the gun limber; 5 and 6 on the wagon limber, 4 on the wagon of the firing battery; 7 and 8 on the limber, 9 on the wagon of the first line; 2, 4, 6 and 8 on the near side; 3, 5, 7 and 9 on the offside.

5. TO MOUNT.

Section commander.

"...section—Detachments, prepare to mount."

The men double to their places at the carriages and lay hold of the guard irons, 2, 6, 8 and 9 with the left hand, 3, 4, 5 and 7 with the right hand, each placing a foot upon trail, perch or spoke.

Section commander.

"...Mount."

The whole spring into their places. The men on the limbers turn round to the front, lifting their feet close together,

and throwing them over the guard irons. They sit upright, holding the handstraps with the inner and the guard iron with the outer hand. This is the position of attention.

When travelling over rough ground they should raise themselves to avoid being jolted.

6. TO SIT AT EASE.

Section commander.

"...section—*Sit at ease.*"

The men on the carriages place the outer upon the inner hand and sit well back.

7. TO DISMOUNT.

Section commander.

"...section—*Detachments, prepare to dismount.*"

The men on the limbers turn to the rear, throwing their legs over the guard irons; 4 and 9 stand up.

Section commander.

"*Dismount.*"

The whole jump clear of the carriages, and form detachment rear.

8. TO MOVE THE GUN WITH DRAGROPES WHEN LIMBERED UP.

Section commander.

"...section—*With dragropes, prepare to advance.*"

2 and 3 hook the dragropes to the drag washers on their own sides, the backs of the hooks downwards; 8 and 9, go to the pole and the remainder man the ropes, 2, 4 and 6 on the near side, 3, 5 and 7 on the off.

Section commander.

"...section—*Walk march.*"

The carriage is moved to the front.

Section commander.

"...section—*Halt.*"

The carriage is halted and the detachment remain at their posts.

Section commander.

"...section—*Detachments rear.*"

2 and 3 replace the dragropes on the shield; the detachment double to their places and halt.

9. TO MOVE THE GUN WITHOUT DRAGROPES WHEN LIMBERED UP.

Section commander.

"...section—*Without dragropes, prepare to advance.*"

2 and 3 push in rear of the shield; 4 and 5 man the gun-wheels; 8 and 9 go to the pole; the remainder assist: 6 on the near side, 7 on the off.

Section commander.

"...section—*Walk march.*"

The carriage is moved to the front.

Section commander.

"...section—*Halt.*"

The carriage is halted and the detachment remain at their posts.

Section commander.

"... *section—Detachment rear.*"

The detachment double to their places and halt.

10. TO EXAMINE EQUIPMENT.

Examination of equipment will be carried out before leaving the gun park. When in action this procedure should be carried out at least once in every 24 hours, and advantage should be taken of any interval to examine and test equipment.

Section commander.

"... *section—Examine equipment.*"

The section commander supervises the testing of sights and grouping of ammunition.

1 sees that the bore is clear, that the gun, buffer and recuperator are properly connected up and the gear regulating recoil in adjustment. He sees that the buffer and recuperator are correctly charged and that there is no leakage from the glands.

He tests and adjusts the sights and sees that the elevation and fuze indicators are set at the M.V. of the gun.

He tests protrusion of the striker, and generally supervises the work of the remainder of the detachment, satisfying himself that spare parts are interchangeable, that the small stores are complete and that the equipment is in all respects ready for action.

2 removes and replaces breech and muzzle covers, and examines the breech mechanism, elevating and clamping gear, shield and brake.

He assists 1 to test and adjust the elevation indicator.

3 examines the sights, apparatus illuminating sights, elevating, traversing and firing gears, shield and brake. He assists 1 to test and adjust the sights.

4 examines the aiming posts.

6 examines the fuze indicator.

4, 5, 6, 7, 8 and 9 examine the limbers and wagons and see that the small stores are complete; they examine the ammunition, and group it in the vehicles as ordered.

As soon as the examination is completed, the detachment forms detachment rear.

1 collects reports, and reports to the section commander "No....ready for action," or otherwise.

11. TO PREPARE FOR ACTION.

Preparation for action will be carried out before moving into action.

Section commander.

"...section—*Prepare for action.*"

The detachment, if mounted, dismount.

1 sees that the bore is clear, and satisfies himself that the detachment and equipment are in all respects ready for action.

2 removes the breech and muzzle covers and straps them to the shield. He examines the breech mechanism, extractor, elevating gear and elevation indicator, clamping gears, shield and brake. He replaces the breech and muzzle covers if ordered.

3 examines the sights, elevating, traversing and firing gears, shield and brake.

4 examines the gun limber and aiming posts.

5 examines the limber and 6 the body of the firing battery wagon.

7 and 8 examine the limber and 9 the body of the first line wagon.

The men who examine the limbers and wagons uncover time fuzes as ordered, seeing that they are set at safety.

As soon as he has completed his duties, each man reports to 1 and resumes his place. 1 then reports to his section commander "No...ready for action" or otherwise.

12. TO COME INTO ACTION.

Action front.

Section commander.

"...section—Action front."

1 places himself, dismounted, so that he can see when his gun is in the required position. He then orders "Halt—Action front."

The detachment dismount. 1 goes to the near and 4 to the off gun-wheel; 2 and 3 go to the trail; 3 releases the limber hook catch and with 2 lifts the trail clear of the hook. 3 orders "Limber drive on." The limber advances one yard, wheels right-about at a trot, and proceeds to the wagon line under the direction of the battery serjeant-major.

3 moves round the trail eye and with 2 carries the trail through half a circle to the right and lowers it to the ground; 1 and 4 man the wheels. On a side slope the trail is carried downhill.

The wagon halts about 20 yards in rear of the gun until the gun is roughly in the line of fire; 1 then signals to the

wagon to "Advance"; the wagon drives up and halts on the left of the gun with the axle of the wagon body 1 yard in rear of and about 1 foot clear of the gun axle.

4 puts on the brake; 5 and 6 unhook; 6 orders "Drive on." The team advances 1 yard, wheels left-about at a trot and proceeds to the wagon line under the direction of the battery serjeant-major.

1 throws back the traversing lever.

2 lowers the shield, raises the upper shield, releases the clamping gears, hands the dial sight to 3, opens the breech, and puts on the brake.

3 raises the shield, fixes the sight clinometer, dial sight, and raises the shutter shield if necessary.

4 prepares the aiming posts.

5 prepares ammunition.

6 fixes the fuze indicator on the wagon shield and assists 5.

The detachment take up their positions in action.

When coming into action in the open—

The wagon drives up as soon as the trail is lowered to the ground.

If the order "Wagons right" is given, the wagon drives up on the right of the gun, instead of the left, and the gun and wagon teams wheel to the left and right-about respectively when ordered to "Drive on."

Action right, Action left, Action rear.

At "Action right" the trail is carried through a quarter of a circle to the left, 2 moving round the trail eye.

At "Action left" the trail is carried through a quarter of a circle to the right, 3 moving round the trail eye.

At "Action rear" the trail is immediately lowered to the ground.

When training detachments in these movements, the detail given under "Action front" must be modified accordingly with regard to movement of teams, trail, and work of 2 and 3.

NOTE.—On dismounted parades, 6, 7, 8 and 9 man the gun limber, 6 and 7 in rear, 8 and 9 at the pole.

13. POSITIONS IN ACTION.

1 kneels on the right side of the trail just in front of the trail handle.

2 sits astride the seat on the right side.

3 sits on the seat on the left side.

4 kneels behind 3.

5 kneels in rear of the wagon on the side nearer the gun.

6 kneels in rear of the wagon on the side further from the gun.

7, 8 and 9 remain with the first line wagons. At drill, when no first line wagons are present, they take post 6 yards in rear of the gun.

14. TO FORM DETACHMENT REAR IN ACTION.

Section commander.

"...section—Detachments rear."

1 doubles to his place (1 yard in rear of the trail eye and covering the right gun-wheel) and gives the order "No. ... Double march." At the order from 1 the remainder double to their places and halt.

15. TO TAKE POST FROM DETACHMENT REAR.

Section commander.

"...section—*Take post.*"

The detachment double to their positions in action.

16. TO OBTAIN THE LINE OF FIRE.

The line of fire is obtained by one of the methods described in Artillery Training.

17. TO LAY THE GUN IN THE LINE OF FIRE.

Section commander.

"...section—*Aiming point.....degs.,...mins. right (or left).*

1 gauges the line and throws the gun into the required direction, ordering "Run up" if necessary.

3 sets the dial sight at the angle ordered, the sight clinometer at zero, and brings the bubble to the centre of its run by the elevating hand-wheel, and lays for line.

1 points out the auxiliary aiming point and battery picket to **3**.

As soon as time permits **3** reports to **1** the readings of the dial sight from the battery picket and auxiliary aiming point; **1** records them on the slate.

The section commander goes to his guns and takes a note of the angles recorded.

18. TO ASCERTAIN THE LOWEST ELEVATION AT WHICH THE TRAJECTORY WILL CLEAR THE CREST.

Section commander.

"...section—*Report crest angle.*"

2 sets the elevation indicator at zero.

1 lays the gun just clear of the crest by looking along the bottom of the bore, ordering 3 to elevate or depress as required.

3 brings the bubble of the sight clinometer central by the micrometer head.

1 applies the correction for droop and jump for his particular gun to the angle recorded on the sight clinometer* and reports the result to the section commander, who passes it to the gun position officer.

The gun position officer adds to the angle reported the elevation due to range to the crest, plus allowance for safety, and reports the resultant quadrant angle to the battery commander.

NOTE.—The section commander should order the correct angle of sight to the gun, after the crest angle has been taken.

19. TO PLANT AIMING POSTS.

Section commander.

"...section—*Aiming posts front (or rear).*"

4 doubles out in front (or rear) of his gun with two aiming posts and plants them as directed by 3 in line with the dial sight set at zero (or 180 degrees). He plants the near post

* Example—

Angle on sight clinometer (say) ...	+	1° 40'
Correction for droop and jump (say) +		24'
Angle to report to section commander		2° 4'

first at about 50 yards from the gun. He then plants the further post as far from the gun as possible up to about 100 yards.

If the order "Re-plant aiming posts" is given, 4 doubles out and, at the signal from 3, pulls up the posts, the further one first, and re-plants them.

20. PARALLEL LINES TO A NAMED GUN.

When the line of the named gun has been obtained by shooting, the angle (or angles) reported by 1 must be corrected for difference in level of wheels of the named gun before being ordered to the other guns.

Zero Line Method.

Section commander.

"...section (or No....)—Parallel lines to No....—Zero line method."

3 of the named gun relays for line.

1 of the named gun reports his angle right or left of his zero line.

This angle, corrected for level of wheels, if necessary, is ordered to the other guns.

Aiming Point Method.

Section commander.

"...section (or No....)—Parallel lines to No....—Aiming point method."

The section commander indicates an aiming point.

3 of the named gun relays for line, swings his dial sight on to the aiming point and 1 reports the reading. This angle, corrected, if necessary, for parallelism and level of wheels, is ordered to the other guns.

Director Method.

Section commander.

"...section (or No....)—Parallel lines to No....—Director method."

3 of the named gun relays for line, swings his dial sight on to the director and 1 reports the reading corrected for level of wheels, if necessary. The director is set accordingly and individual angles are ordered to the other guns.

Dial Sight Method.

Section commander.

"...section (or No....)—Parallel lines to No....—Dial sight method."

3 of the named gun relays for line. He then swings his dial sight on to the dial sight of each gun in turn.

1 reports these angles, corrected for level of wheels, if necessary, to his section commander, who passes on their supplements to the section commander concerned.

3 of each other gun sets his dial sight at the angle ordered for his gun and lays on the dial sight of the named gun.

21. TO CHECK PARALLEL LINES.

Section commander.

"...section—Check parallel lines to No...."

(B 27/18)Q

A 5

2 sets the elevation indicator at zero.

3 relays for line.

3 of the named gun lays on the dial sight of each gun in turn.

1 reports the angles to his section commander who passes them to the section commanders concerned.

3 of each other gun lays on the dial sight of the named gun.

1 reports the reading to his section commander, who adds it to the angle taken by the named gun. The sum of the two angles should be 180 degrees. If necessary he corrects the zero line angles.

22. TO LOAD.

Percussion shrapnel.

Section commander.

"...section—Shrapnel normal (or heavy)...ranging (or method of fire)—Percussion."

1 repeats the ammunition order, and at the correct moment orders "Load."

5 supplies a round to 4.

4 sees that the fuze is set at safety, loads, and receives another round from 5.

2 closes the breech.

Time shrapnel.

Section commander.

"...section—Shrapnel normal (or heavy)...ranging (or method of fire)—Corrector..."

"(Elevation)..."

1 repeats the ammunition order, and at the correct moment orders "Load."
 6 sets the fuze indicator and calls out the fuze setting.
 5 sets the fuze and supplies the round to 4.
 4 loads and receives another round from 5.
 2 closes the breech.

High explosive.

Section commander.

"...section—H.E. (fuze)...ranging (or method of fire)."

1 repeats the ammunition order and at the correct moment orders "Load."•

5 uncaps the fuze (if necessary) and supplies the round to 4.

4 loads and receives another round from 5.*

2 closes the breech.

During ranging (except with "time set" fuzes) the gun will be reloaded as soon as it is fired.

During ranging with "time set" fuzes the gun will be reloaded as soon as the time setting has been ordered.

At a method of fire the gun will not be loaded sooner than is necessary to maintain the rate of fire.

After the first round—

If there is no alteration in ammunition ordered, 1 only orders "Load."

* When a specified number of rounds (fuze No. 106) have been fired the wire and seal of the fuze of this round will be unbroken.

If there is an alteration in ammunition ordered, **1** repeats the ammunition order for the first round only.

NOTE.—At drill, only drill cartridges with wooden shells will be loaded.

23. TO UNLOAD.

No. 1.

"No....—Unload."

2 opens the breech slowly.

4 withdraws the round and places it on the ground.

NOTE.—The unloaded round can be re-set or returned to the wagon, but rounds with the time rings re-set should be fired as soon as possible.

24. TO LAY THE GUN.

Indirect laying with sight clinometer.

Section commander.

"...section...deg.s...min.s. more right (or left)."

"Angle of sight...deg.s...min.s. elevation (or depression)."

"(Elevation)...."

1 applies the position correction (if any) and passes the corrected elevation to **2**.

2 sets the elevation indicator and reports "Set."

3 puts on the deflection and angle of sight, lays and reports "Ready."

Indirect laying with field clinometer.

Section commander.

"...section—Clinometer laying...deg....mins. more right (or left)."

"Angle of sight—...deg....mins. elevation (or depression)."
(Elevation)...deg....mins."

1 applies the index correction (if any) to the elevation ordered and passes the corrected elevation to 2.

2 sets the field clinometer, lays for elevation, and reports "Set."

3 puts on the deflection, sets and levels the sight clinometer, lays for line and reports "Ready."

1 removes the field clinometer.

NOTE.—When laying by field clinometer, the elevation ordered is the actual elevation at which each gun is to be laid.

Direct laying.

Section commander.

"...section—Reference point..."

"Target—...o'clock...degrees."

"Open sights—...deg....mins. more right (or left)."

"(Elevation)..."

1 throws the gun into the line.

2 sets the elevation indicator and reports "Set."

3 sets the traversing gear at zero (or at 3 degs. traverse if the order "Target...moving from..." is given) and puts the deflection on the open sights. He lays direct over the open sights on the ground line of his portion of the target and reports "Ready."

If "Indirect" is ordered, 1 selects an auxiliary aiming point and points it out to 3.

3 turns the dial sight on to this aiming point. He sets the sight clinometer at the angle of sight ordered, and lays indirect with sight clinometer.

25. TO FIRE.

No. 1.

"No...—Fire."

1 orders "Fire" as soon as he has satisfied himself that his gun is ready and his turn to fire has arrived.

3 fires the gun and re-lays.

2 opens the breech.

The gun will on no account be fired without the order from 1.

If the gun fails to run out completely 2 and 3 push it home by hand.

26. MISS-FIRES.

If the gun fails to fire, 3 gives the firing lever a second pull.

If the gun again fails to fire, 1 allows one minute to elapse, orders "Unload," and examines the primer.

If the primer has failed to fire he examines the cap. If fairly struck, a new primer is inserted. If not fairly struck, the striker is changed.

If the primer has fired a new primer is fitted provided that the round can be fired at once. Otherwise the charge is withdrawn and destroyed. Such a round must on no account be replaced in a wagon or limber.

27. TO CLEAR THE SPADE.

Section commander.

"...section—*Spades clear.*"

1 orders "Run up."

3 throws back the quick release lever of the brake and brings the traversing gear to zero; 2 and 4 man the wheels; 1 and 6 man the traversing lever.

At the order from 1 the spade is cleared and the gun moved to the front (or rear) until the platform is satisfactory.

1 orders "Take post." The gun is relayed.

If necessary on account of heavy ground, 1 orders "With dragropes, run up."

3 throws back the quick release lever of the brake and brings the traversing gear to zero.

2 and 4 make fast wheel purchases just above the brake blocks.

1 mans the traversing lever, the remainder man the ropes, 2 and 5 on the right, 4 and 6 on the left.

At the order from 1, the spade is cleared and the gun moved to the front (or rear) until the platform is satisfactory.

1 orders "Take post"; 2 and 4 replace dragropes.

The gun is relayed.

28. TO CHANGE TARGET.

Section commander.

"...section—Target..."

"(Ammunition)..."

"...degs...mins. right (or left) of zero lines."

1 repeats the ammunition order, clears the spade if necessary, and throws the gun into the new line.

3 brings the traversing gear to zero, sets the dial sight at the recorded zero line reading, and turns the micrometer head through the angle ordered.

5 and 6 prepare ammunition.

Section commander.

"Angle of sight—...degs...mins. elevation (or depression)."

3 sets the sight clinometer.

1 checks the setting.

Section commander.

"...ranging (or method of fire)."

"(Interval) (if required)..."

"Percussion (or corrector) (if necessary)."

1 at the correct moment orders "Load."

5 supplies ammunition to 4.

4 loads and receives another round from 5.

2 closes the breech.

Section commander.

"(Elevation) or (elevations)..."

1 passes the elevation to 2.

2 sets the elevation indicator and reports "Set."

3 lays, puts on the brake and reports "Ready."

If necessary on account of heavy ground, 1 orders
"With dragrope trail right (or left)."

2 hooks a dragrope to the trail handle; 2, 4, 5 and 6 man
the rope and heave as directed by 1 or 3.

1 orders "Take post"; 2 replaces the dragrope.

29. TO STOP FIRING.

Section commander.

"...section—Stop."

The detachment continue their duties but the gun is not
fired until the order "Go on" is given.

30. TO STAND FAST.

Section commander.

"...Section—Stand fast."

All stand fast whatever they are doing.

At the order "Go on" work is continued.

31. TO STOP LOADING.

Section commander.

"...section—Stop loading."

The preparation of ammunition is suspended.

The detachment continue their duties. Any gun already
loaded is fired at its proper interval, but no gun will be loaded
until the order "Go on" is given.

32. TO EMPTY GUNS.

Section commander.

"...section—*Empty guns.*"

Any gun loaded is layed at the last elevation and line, and fired.

If a cap has been removed from a No. 106 fuze before the order is given, the loading is completed, and the gun fired.

33. TO STAND EASY IN ACTION.

Section commander.

"...section (or No....)—*Stand easy.*"

This order is given to indicate that firing is temporarily suspended.

Before opening fire again the order "Take post" will be given.

34. TO PREPARE TO MOVE.

The section commander informs the Nos. 1 of the method of evacuating the position and whether a position of assembly is to be used.

Section commander.

"...section—*Prepare to move.*"

Ammunition and stores as ordered by the section commander are repacked.

Preparation for limbering up will be made as far as possible, but guns will remain in action until the order "Cease firing" is given.

35. TO CEASE FIRING.

Section commander.

"...section—Cease firing."

If the gun is loaded, 1 orders "Unload."

The spade is cleared, and 1 folds the traversing lever on the trail.

2 closes the breech, takes off the brake, receives dial sight from 3 and places it in the case.

3 sets the traversing gear at zero, replaces sight clinometer, hands dial sight to 2, lowers and secures the shutter shield and secures the quick release lever of the brake by its strap.

4 brings in and replaces the aiming posts if ordered.

5 and 6 reset fuzes at safety, replace clips and ammunition and close all lids.

6 replaces the fuze indicator and takes off the wagon brake.

2 depresses the gun to its full extent; 3 elevates the gun to stops; 2 brings the gun to the travelling position and secures the clamping gears.

2, assisted by 3, raises and secures the lower shield.

3 lowers the upper shield.

36. TO LIMBER UP.

Rear limber up.

Section commander.

"...section—Rear limber up."

The detachment take post as follows:—

2 and 3 between breech and wheels, 1 in front of 2; 4 in front of 3, kneeling with their backs to the axle-tree; 5 and

6 ready to limber up the wagon or hook in the wagon team.

The limber approaches from the right; 1 orders "Halt" early enough to ensure that when halted the off wheel will be opposite the trail eye; the limber is halted and squared.

1 orders "Limber up"; 2 and 3 lift the trail and place it on the hook; 1 and 4 man the wheels.

5 and 6 hook in the wagon team, or limber up the wagon.

The detachment mount without further orders.

On dismounted parades they form detachment rear.

Front limber up.

Section commander.

"...section—*Front limber up.*"

2 and 3 lift the trail; 4 mans the left and 5 the right gun-wheel; the gun is run clear of the wagon and the trail is carried through a half circle to the right (2 moving round the trail) and lowered to the ground. The detachment take post.

The limber drives up on the right and one yard clear of the gun. When clear of the gun-wheel, it inclines to the left until the near wheel of the limber has just passed the trail eye.

1 orders "Halt"; the limber is halted and squared.

1 orders "Limber up"; 2 and 3 lift the trail and place it on the hook; 1 and 4 man the wheels.

5 and 6 hook in the wagon team, or limber up the wagon.

The detachment mount without further orders.

On dismounted parades they form detachment rear.

Right limber up.

Section Commander.

"...section—*Right limber up.*"

The trail is carried through a quarter of a circle to the right.
(*The procedure is then as in front limber up.*)

Left limber up.

Section Commander.

"...section—*Left limber up.*"

The trail is carried through a quarter of a circle to the left and the limber drives up on the left.

(*The procedure is then as in front limber up.*)

When detailing "Right (*or* Left) limber up," the instructor will modify the detail of "Front limber up" as necessary.

37. CASUALTIES TO DETACHMENTS.

Men sent to replace casualties report to their section commanders who order such changes of duties as they consider necessary.

Casualties are replaced as follows:—

Section commander ...	By the senior No. 1 of the section.
1	By a named successor.
With five men ...	5 performs the duties of 5 and 6.
With four men ...	1 performs the duties of 1 and 2. 2 performs the duties of 5 and 6.

With three men ... 1 performs the duties of 1 and 2,
and calls out the length of
fuze from the fuze indicator
on the shield.
2 performs the duties of 4, 5
and 6.

38. CASUALTIES TO EQUIPMENT.

(i) Breech mechanism.

If the breech will not open see that :—

- (a) The trigger has resumed its normal position.
- (b) The guide for mainspring is flush with the face of the breech.

The trigger can be pushed into place by hand. If the guide for mainspring is not flush, remove the firing mechanism. If the breech still cannot be opened, place the point of a pick-axe between the breech mechanism lever and the carrier, press in the catch retaining breech mechanism lever and gently move the breech mechanism lever.

(ii) Sight clinometer.

Lay by means of the field clinometer.

(iii) Elevation indicator.

Lay by means of the field clinometer.

(iv) Dial sight.

Lay on aiming posts over the open sight. To obtain the line before planting aiming posts, lay the gun by means of a dial sight borrowed from another gun.

(v) Wheels.

If a gun-wheel is damaged, turn it at once so that the soundest portion bears the weight of the gun. Procure a spare wheel from a limber or wagon and replace the damaged wheel as follows:—

Raise the carriage by lifting on the damaged wheel (or by means of a jack if available). Support the axle by means of the bar supporting pole, placing the lower end on a shovel to prevent it sinking into the ground. The damaged wheel can then be removed and replaced.

If the damage is such that the axle has fallen to the ground it may be raised by means of a limber as follows:—

Place the limber so that the limber hook is over the point of the axle of the gun. Scotch the limber wheels to prevent them running forward. Raise the pole through an angle of about 80 degrees, having first secured a dragrope with which to haul it down. Secure the axle to the limber hook by means of a dragrope and then haul down on the pole.

39. LONG RANGE SHOOTING.**Carriages Marks I* to II only.**

For ranges over 6,600 yards when using 2 c.r.h. shell the following procedure will be adopted:—

The line is obtained and AFTER the gun is layed in it, subsidiary aiming posts are planted at 180° or a distant aiming point is chosen to lay on from round to round.

The range table of the gun includes three long range tables for ranges between 6,000 yards and 9,400 yards.

In addition to the true angle of sight for the target a false angle of sight of 7°, 14° or 20° elevation (according to which

table is to be used) is put on the sight clinometer. The tables then show the settings of the elevation indicator which correspond to any range required.

The M.V. corrector is kept set to the known M.V. of the gun.

Permanent additional gun corrections are given to guns on the figures in the table, according to their individual M.Vs.

The tables give the number of yards on the indicator which is equivalent to 100 yards on the ground. This information is used for the applying of meteor corrections and, if there is no M.V. corrector, of any gun corrections.

The tables also give the extra deflection required to correct for drift.

On the level it is necessary to dig a hole for the trail—

1 foot deep to reach 7,000 yards.	
2 feet " " " " 8,000 "	
3 " " " " 9,000 "	
4 " " " " 9,500 "	

The hole must not be deeper than is actually necessary or the stability of the carriage will suffer.

The wheels should be level.

Ranging, if necessary, should be carried out in false yards.

Example :—

" *All guns 12 degrees Right of zero lines.*"

" *Aiming posts rear.*"

" *Sink trails to reach 8,000 yards*" (G.P.O. reports " *Ready* ").

" *Target—Transport.*"

" *H.E. 106.*"

" *All guns 10 mins. more Left*" (extra drift correction).

"Angle of sight—7 degs. 30 mins. elevation." (includes true angle of sight 30 mins. elevation).

"One round Salvo fire."

"6100."

"Fire."

Specimen Permanent additional Gun corrections, to be applied on Elevation Indicator :—

Gun.	M.V. Variation in.	Correction.		
		A.S. 7°.	A.S. 14°.	A.S. 20°.

40. DISABLEMENT.

The extent of disablement ordered will depend on the time available and the probability of recapture.

To disable the gun so that it can be brought into action immediately after recapture ; remove the breech screw.

To disable the gun so that it be brought into action after repair : disconnect the recoil unit and fire the gun.

To destroy the gun : place an H.E. shell fuze 101E or 101B in the muzzle, load with H.E. fuze 101E or 101B, and fire the gun by means of a long lanyard from under cover. A length of telephone wire attached to the lanyard is suitable for the purpose.

NOTE.—The dial sight and clinometers should always be removed, and taken away before abandoning a gun.

41. BLANK AMMUNITION.

1. No officer, non-commissioned officer or gunner who has not been trained and passed in gun drill, is to command a section or form part of a gun detachment firing blank ammunition at salutes or at training.

2. When firing Q.F. blank cartridges, no gun is to be reloaded within 15 seconds after firing. Even after this interval, no gun is to be reloaded until 1 has examined the chamber and bore and removed any debris remaining from the previous round.

3. In the event of a miss-fire, a further attempt should be made to fire the gun in its turn. In no case must the breech be opened for at least one minute with black powder, and ten minutes with smokeless charges. No one must be in rear of the breech when it is opened. In firing salutes, an officer or senior non-commissioned officer should be detailed for the special duty of timing the interval after a miss-fire and informing 1 of that gun when the breech may be opened.

4. As a further safeguard, 1 is responsible that the charge is properly home in the case before the round is loaded. This can be done by pressing down the leather board cup on the point of the traversing lever, a small mark being made under local arrangements on each traversing lever, to indicate when the charge is in its correct position.

CHAPTER III.—LAYING AND FUZE SETTING TESTS.

1. In every battery there should be at least six qualified layers and nine qualified fuze setters in each sub-section, exclusive of serjeants and lance-serjeants. A list of layers should be kept. All layers, fuze setters, section commanders, serjeants and lance-serjeants should be tested periodically.

2. All officers and Nos. 1 must be thoroughly conversant with :—

- (i) The tests for and care of sighting gear and sights.
- (ii) The methods of obtaining parallel lines of fire.
- (iii) M.V. correctors and corrections for jump and droop.

3. Layers will be tested by means of two tests. Test A will consist of four lays indirect ; test B of two lays direct.

4. A maximum of 20 marks will be given for each lay in test A, and 10 marks for each lay in test B. In order to qualify, a layer must obtain 81 marks.

The duties of 2 will be considered as part of each test.

5. The examiner should be assisted by an officer or senior non-commissioned officer with a stop watch and record book, and by a penciller who will take down all orders given, for reference when checking the lay.

6. When laying indirect, three or more aiming points should be selected to the rear and on either flank, if possible, and made known to all concerned.

7. Before beginning the tests at least five targets will be selected in the foreground at varying ranges and angles of sight, and covering a front of about 25 degrees; except in the case of targets representing guns, these should be natural features of the ground. If it be necessary to use dummies, they should be placed in positions such as the troops which they represent would naturally occupy on service. A reference point, approximately in the centre of the target zone, will be pointed out to the No. 1 and to the layers; targets will be indicated with reference to this point by means of the clock code.

8. When laying direct on any target (other than a gun target) which extends over a fairly wide frontage, great exactitude in direction will not be required as regards the point originally selected to lay upon, which may be anywhere in that portion of the target opposite to the gun being layed. Any subsequent lay on the same target must, however, be on the same point as the first.

9. The orders for the lay must be given out by the examiner clearly and distinctly, a short pause (about 2 or 3 seconds), being made after each separate order, thus: "*All guns 20 degs. right of zero lines*" . . . pause . . . "*All guns 15 mins. more right*" . . . pause . . . "*Angle of sight 1 deg. 20 mins elevation*" . . . pause . . . "4200."

All orders will be acknowledged by the No. 1 and acted on at once. Should a layer at any time be in doubt as to any particular order, he will refer to the No. 1, who may repeat to him any part of the order received. The No. 1 may, in turn, refer to the examiner.

10. After checking a lay, the examiner will elevate the gun about 15 minutes.

11. In the case of a change target the brake must be taken off and put on by means of the quick release lever.

12. Layers will be examined in pairs (Nos. 2 and 3); for any incorrect portion of a lay marks will be deducted only from the individual making the error.

13. The times allowed for each lay are as follows :—

Test A.				Test B.	
Lay 1.	Lay 2.	Lay 3.	Lay 4.	Lay 5.	Lay 6.
0' 45"	0' 30"	0' 40"	0' 55"	0' 25"	0' 20"

The layer will call out "Ready" as soon as he has finished laying the gun. The time will be taken from the conclusion of the orders for the lay until the word "Ready" from the layer.

14. One mark will be deducted :—

- (i) For every 5 seconds or fraction of 5 seconds beyond the time laid down for the particular lay.
- (ii) If the traversing gear is not within 30 minutes of zero, except in lays 2 and 6.
- (iii) For each mistake in the manipulation of the sighting gear or in the drill of the layer as laid down.

15. Ten marks will be deducted :—
If the aiming posts are not planted in line.
16. No marks will be given for the lay :—
 - (i) If the sight, clinometer or elevation indicator is incorrectly set.
 - (ii) When laying indirect, if the gun is not correctly layed for elevation and direction.
 - (iii) When laying direct, if the gun is not layed for elevation within 3 minutes or for direction within 5 minutes.
17. Fuze setters will be tested by three continuous tests.
18. A maximum of 30 marks, 10 to be allotted for each test, will be given for the three tests; in order to qualify 25 marks must be obtained.
19. Time allowed for each test will be one minute.
20. No marks will be given for the test—
 - (i) If the fuze indicator is wrongly set.
 - (ii) If any fuzes are incorrectly set.
21. One mark will be deducted for every five seconds over the time allowed.

EXAMPLES OF TESTS.

Laying tests.

The gun is placed on a firm platform. The examiner sets the elevation indicator at about 3,000 yards and the remaining scales at zero.

Test A (indirect).

Orders.	Procedure.
Lay 1.	
"Aiming point..."	The procedure will be as laid down under "To lay the gun in the line of fire."
"All guns, 90 degrees 10 minutes right."	The battery picket and auxiliary aiming point readings will be recorded on the slato after 3 has reported "Ready."
"Aiming posts front."	The procedure will be as laid down under "To plant aiming posts." Time for this part of the lay is not taken.
Lay 2.	
"All guns, 1 degree 10 minutes more right."	The procedure will be as laid down under "To lay the gun."
"Angle of sight, 1 degree 20 minutes' elevation."	
"3400."	
Lay 3.	
"Represent No. 2 gun in action."	The procedure will be as laid down under "To change target" and "To lay the gun."
"Target...."	
"All guns, 2 degrees 15 minutes more left."	

Test A (indirect)—*continued*.

Orders.	Procedure.
"Concentrate 20 minutes on No. 1."	
"Angle of sight, 10 minutes depression."	
"4275."	

Lay 4.

"Target..."	The procedure will be as laid
"All guns, 31 degrees right of zero lines."	down under "To change target" and "To lay the gun."
"Clinometer laying."	
"Angle of sight—1 degree elevation."	
"10 degrees 30 minutes."	

NOTE.—In lays 2, 3 and 4, layers should be exercised and tested in laying from auxiliary aiming points or aiming posts at the discretion of the examiner.

Test B (direct).

The reference point is described before orders are given.

Lay 5.

"Represent No. 3 gun in action."	The procedure will be as laid
"Infantry lining hedgerow ; 4 o'clock, 3 degrees to 5 degrees."	down under "To lay the gun."
"Open sights."	
"1200."	

The examiner will put on a deflection and note the reading.

Test B (direct)—*continued*.

Orders.	Procedure.
Lay 6.	
"All guns, 40 minutes more left."	The gun will be relayed on the same point of the target as in Lay 5.
"1500."	The deflection ordered will be such as will enable the layer to lay by the traversing gear.

Fuze setting test.

Orders.	Procedure.
"Corrector 152, 4700"	The competitor will set the fuze indicator at the corrector and elevation ordered and will set six fuzes at the graduation shown on the fuze indicator.

CHAPTER IV.—SIGHT TESTS.

The field clinometer, sight clinometer and elevation indicator should be tested daily and after prolonged firing. The alignment tests should be carried out as often as possible.

At drill these tests should be carried out frequently to give officers and N.C.Os. practice in doing them accurately.

Any adjustment to optical instruments must be carried out by a qualified artificer.

Test 1.—To test the field clinometer.

To ascertain the index error.

1. Set the clinometer to read zero (degrees and minutes), place the instrument on the clinometer plane of the gun, and by means of the elevating gear bring the bubble into the centre of its run. Turn the clinometer end for end. If the bubble does not remain in the centre of its run bring it there by moving the arm and slider. Note the nett reading. Half this reading is the INDEX ERROR of the clinometer.

2. An alternative method may be employed. Procure a clinometer known to be in adjustment, set at zero, place it on the clinometer plane and by means of the elevating gear bring the bubble central. Remove the clinometer. The clinometer to be tested is now placed on the clinometer plane and the bubble brought central by moving the arm

and slider. The actual reading of this instrument is the INDEX ERROR. A number of clinometers can be quickly and uniformly tested in this manner.

NOTE.—A clinometer when set to read its INDEX ERROR and with the bubble brought central will lay the clinometer plane horizontal.

The clinometer should be adjusted to have no INDEX ERROR, or if this is impracticable, the INDEX ERROR must be applied to all angles to be set on the instrument.

The method of eliminating or adjusting for INDEX ERROR is shown in the Handbook.

Test 2.—To test and adjust the sight clinometer.

With the sight clinometer bracket horizontal and the sight clinometer reading zero, the bubble of the sight clinometer should be in the centre of its run.

Place the sight clinometer, set at zero, in its bracket and bring the bubble to the centre of its run by the left elevating hand-wheel. Reverse the sight clinometer end for end; the bubble should still be in the centre of its run.

If the bubble is not in the centre, bring it so by turning the micrometer head. Note the reading and set the micrometer scales to half this reading. Bring the bubble to the centre of its run by the left elevating hand-wheel. Slacken the nuts securing the micrometer scales and the screws securing the degree scale; shift the micrometer scales and reader to zero and re-clamp.

Test 3.—To test and adjust the elevation indicator.

With the sight clinometer reading zero and the bubble in the centre of its run, and with the axis of the gun inclined at the necessary angle to the line of sight to compensate for jump and droop, the elevation indicator should read zero. If the jump of any particular equipment has not been determined it will be taken as - 20 minutes.

Place a round in the chamber to take up any play in the elevating gear.

Set the M.V. corrector at 1615.

Set the sight clinometer at zero and bring the bubble to the centre of its run by the left elevating hand-wheel; place the field clinometer set at the correction for jump on the left guide rib near the muzzle, arc to the rear. Elevate and then depress by the right elevating hand-wheel until the bubble of the field clinometer is in the centre of its run. The elevation indicator should read zero.

If the elevation indicator does not read zero, slacken the nut, revolve the indicator until it reads zero and re-clamp.

Set the M.V. corrector at the muzzle velocity of the gun.

Remove the round from the chamber.

Alignment tests.

Before beginning these tests the following preparations should be made:—

- (i) Place the carriage on a firm platform.
- (ii) Select a well-defined object at least 1,500 yards distant on which to lay.

- (iii) If this distant object cannot be found, level the carriage transversely, and set up the target testing sights (*see* diagram) about 50 yards in front of the gun at right angles to the axis of the bore.
- (iv) If the carriage cannot be levelled transversely the top of the dial sight carrier and the target testing sights should be sloped to the same angle as the carriage.
- (v) Remove the striker and fix cross-wires at the muzzle of the gun.*
- (vi) Set the elevation indicator, the cowl of the dial sight, the dial plate and micrometer scales of the dial sight and the deflection scale of the open sight at zero.

Test 4.—To test and adjust the dial sight and open sight for line.

The lines of sight through the dial sight and open sights should be parallel to the axis of the bore as regards line.

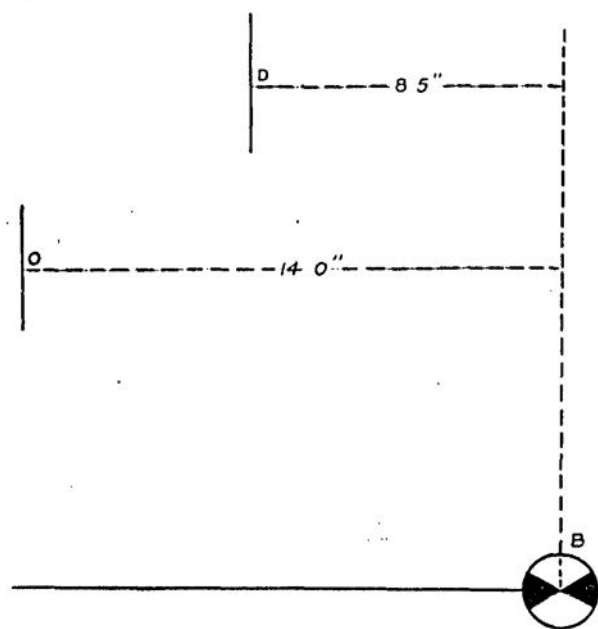
Lay the bore on the distant object for line by the left elevating handwheel and the traversing gear, using the intersection of the cross wires as a foresight and the hole in the firing-hole bush as a hind sight. The lines of sight through the dial sight and open sights should be on the distant object.

When using the target testing sights lay the bore on point B; the dial sight should be on line D, and the open sights on line O.

* The cross-wires must be removed on completion of test.

TARGET TESTING SIGHTS.

18 PR. Q.F. MARKS I AND II ON CARRIAGES MARKS I TO II.



KEY.

B = Bore of Gun.
O = Open Sight.
D = Dial Sight.

If the dial sight is not in alignment, turn the micrometer heads of the dial sight until the line of sight is correct, slacken the screws securing the reader of the dial plate and the nuts of the micrometers, shift the reader and micrometer scales to zero and re-clamp.

If the open sights are not in alignment, slacken the nuts of the cotter pin and partly withdraw it. Slacken the nut of the eccentric bush and move the sight by means of the bush until the line of sight is correct and re-clamp.

**Test 5.—To test and adjust the open sights
for elevation.**

The line of sight over the open sights should lie in a plane parallel to that in which the bubble of the sight clinometer lies, when the latter is set at zero with the bubble in the centre of its run.

Set the sight clinometer at zero and bring the bubble to the centre of its run by the left elevating hand-wheel; place the bar testing sights on the open sights, and place the field clinometer set at zero on the bar testing sights. The bubble should be in the centre of its run.

If the bubble is not in the centre, bring it so by slackening the fixing screw and screwing the foresight up or down and re-clamp.

CHAPTER V.—CARE OF EQUIPMENT.

1. CLEANING AND OILING.

Limber gunners should be intelligent and reliable men.

The projections on the exterior of the gun, by means of which the gun slides in the cradle of the carriage, should be kept clean and oiled and maintained in good working order; all working surfaces should be well lubricated and kept free from paint.

The gun should be pulled back in the cradle at least once a week by a tackle or dragropes; this lubricates the guides and operates the packings. The gun slide lubricators only operate during recoil and run out; these lubricators must be kept filled with oil dag.

The bore should be kept clean and lightly greased.

After firing it should be scrubbed out with caustic soda and hot water (1 lb. to a gallon), using the piasaba brush. When dry it should be lightly greased with mineral jelly.

No gritty substance, such as sandpaper or bath brick, should be used for cleaning working surfaces.

All spare parts should be used periodically to ensure that they are in working order.

The axletrees should be greased frequently, the old grease, particularly from the channels of the pipe box, being removed before new grease is applied. If there is side play between the wheel and the carriage, the linch-pin should be withdrawn and the adjusting collar revolved to a suitable position to take up the play.

Heads of lubricators should be kept free from paint.

List of lubricators.

Fitting to be lubricated.	No.	Where situated.
Capsquares	2	On top of each.
Carriage body—		
Bearings, axletree	2	In lubricating cup, 1 on each side.
Bearings, clutch spindle	2	Inside carriage body, 1 on each side.
Cap, lower bracket of	2	In bearing portion for hand-wheel spindle on left side.
Cradle—		
Body	8	7 in sides for oiling sliding surfaces, and 1 on left side at rear, with tube for lubricating hand-wheel spindle.
Bearing, pinion, spindle, hand-wheel.	1	On right side, close to hand-wheel.
Gear brake—		
Bolts, connecting—		
Cranked levers	3	2 on left side and 1 on right, close to shield.
Eccentric link	1	Rear brake blocks— In head of bolt, left side.
Fork actuating screw	1	In head of bolt, right side.
Fork actuating screw	1	On right side.
Link, eccentric	1	On left side.
Gear, elevating—		
Rod, connecting elevating screw.	1	In lower end.
Gears, firing—		
Arm, connecting	1	In upper end, left side.
Rod, connecting	2	1 at each end, left side.
Bracket, connecting arc, range gear.	1	On left side.
Bolts, connecting brake arm	2	In head of each bolt.
Crosshead, traversing gear	1	

List of lubricators—*cont.*

Fitting to be lubricated.	No.	Where situated.
Lever, traversing	1	At jointed end of lever, near plunger.
Recuperator, bottom guide ...	1	On case.
Sight, rocking bar	1	For oiling arm trunnion support- ing sight.
Wheels, 2nd Class, "C" No. 45	2	In inner flanges.
Breech, screw and carrier ...	1	On top of carrier.
<i>Wagon, Ammunition</i>		
Lovers, cranked brake gear—		
Near	1	Rear of wagon.
Off	1	Rear of wagon.

2. THE NO. 7 DIAL SIGHT.

The dial sight when issued is in correct adjustment, water-tight, and with all the cells and joints secured by screws. It is very unlikely that the interior will be required to be cleaned and the dial sight must on no account be taken to pieces except by persons in possession of a certificate from the Artillery College stating they are qualified to do so.

The body of the dial sight must be cleaned with a clean soft cloth and a little oil, which must be rubbed off afterwards, care being taken that the glass is not touched.

The exterior of eyelens and window should be cleaned with a soft cloth or chamois leather, which must be kept perfectly dry and clean and be used for this purpose only.

Dermatine or rubber eye-guards should not be unnecessarily exposed to extremes of temperature, to the sun's rays, or to bright light.

Oil and grease will inevitably destroy rubber or dermatine, and prolonged contact with benzol, petrol and chemicals is undesirable. If, however, oil or grease gets on the eye-guard, it should be immediately removed, either :—

- (i) By wiping with a clean rag soaked in benzol or petrol.
- (ii) By washing in water to which a little soap and soda have been added.
- (iii) By wiping off with a clean dry rag.

The No. 7 dial sight should be removed from the bracket before travelling any distance and when not in use must be kept in the case provided for the purpose

3. THE BREECH MECHANISM.

(i) General precautions.

The breech mechanism should be dismantled periodically in order that it may be thoroughly cleaned.

The threads of the breech screw should be free from burrs. These may be removed by careful filing by an artificer, but no portion of the thread should be cut away to remove a crack.

The breech should be kept covered up, when possible, to prevent dust and grit getting into the breech fittings. A cover is provided for this purpose.

(ii) To dismantle the breech mechanism.

With the breech open remove the keep-pin of the breech mechanism lever hinge bolt, withdraw the hinge bolt, remove the breech mechanism lever guide block with firing lever, and striker. Press in the catch retaining breech screw and unscrew (clockwise) the breech screw from the carrier. Remove the catch retaining breech screw with spring. Remove the keep-pin of the carrier hinge bolt and withdraw the hinge bolt. Remove the carrier. Remove the keep-pin of the extractor hinge bolt, and withdraw the hinge bolt and extractor. Remove the keep-pin and withdraw "Part I" trigger from the left side of the breech, then "Part II" from the rear.

(iii) To assemble the breech mechanism.

The fittings are replaced in the reverse order.

When inserting the breech screw in the carrier, care must be taken before commencing to screw in, to hold the breech screw square against the face of the carrier with one of the

threaded portions of the screw uppermost, the stamping on the screw to the rear. Two and a quarter turns of the breech screw are required, the retaining catch being pressed in clear of the recess in the screw during the operation.

When inserting the trigger, first correctly assemble the spring with the projecting ends in the holes for their reception in the "Part I" trigger and bush, then insert the collar on the trigger with the recessed portion innermost, and twist the bush on the trigger until the projection on it engages with the recess in the collar. Insert "Part I" trigger with bush, collar, and spring into the left side of the breech ring, and engage with "Part II" trigger inserted from the rear. Insert the keep pin.

(iv) To dismantle the firing mechanism.

When removing the striker from, or inserting it into, the guide block, the safety catch in the latter must always be in the firing position.

Press on the top of the guide for main spring so as to compress the spring lightly, at the same time tilt the upper end of the guide from the striker, and withdraw the guide and main spring. Remove the firing pin and the pin securing re-bound block and withdraw the latter. Place the safety catch in the firing position, force it out of its recess in the guide block towards the centre of the block, and withdraw it.

(v) To assemble the firing mechanism.

The firing mechanism is assembled in the reverse order.

(vi) **To test the protrusion of the striker.**

Swing the breech screw and carrier into the loading position and remove the striker. Take out the main spring from the striker and reassemble the latter. Replace the striker (without main spring) in position in the gun, press in the catch retaining breech screw and revolve the breech screw in the carrier until it is in the position in which it would be if the breech were closed. Press the striker forward in the breech screw as far as it will go. Apply the gauge, and if the protrusion is not within the limits, change the firing pin.

4. RECUPERATOR AND BUFFER.

General Precautions.

(i) **Before firing.**

Care should be taken to see that the recuperator and buffer are correctly charged, that there is no leakage at the stuffing boxes, that the cylinder block is firmly nutted up to the lug of the gun and the piston rods to the front cap, and that the regulating gear is in adjustment.

It is necessary to strain the oil before charging the recuperator or buffer.

During severe weather, recuperators and buffers should be protected as much as possible from the cold.

Any operations for the replacement of worn or defective parts which necessitate emptying the recoil system should be carried out only under qualified supervision.

(ii) **In action.**

During action the functioning of the system should be carefully watched and steps taken at once to remedy defects.

The following are the more common faults :—

For any given fault the causes and remedies are set out in the sequence which should be followed to ascertain the particular cause and remedy, so that the simplest and most readily removed causes may be eliminated before proceeding to the more difficult.

Fault.	Cause.	Remedy.
Recoil violent	Air in buffer cylinder ...	Operate snifting valve.
	Insufficient liquid in buffer system.	Fill buffer and tank.
	Reduced air pressure in recuperator.	Test and recharge recuperator.
Recoil excessive	Wear of piston and valve	Adjust by cut-off gear.
	Buffer nearly empty ...	Fill buffer and tank.
Recoil short	Damaged slides ...	Examine and repair.
	Excessive air pressure ...	Test and expel surplus.
	Wrongly set cut-off gear	Test and adjust gear.
	Excess of liquid in recuperator.	Test and recharge recuperator.
	Packings too tight ...	Repack.
Run out slow	Valve adjusting run out incorrect.	Open valve.
	Burrs or grit on slides ...	Remove obstruction.
	Reduced air pressure ...	Test and adjust pressure.
	Packings too tight ...	Repack.

(ii) *In action—continued.*

Fault.	Cause.	Remedy.
Run out violent ...	Valve adjusting run out incorrect. Excessive air pressure ... Retarding valve fast in open position.	Close valve further. Test and expel surplus. If this is suspected and a few rounds fails to move it, then strip recuperator and replace valve.
Failure to run out ...	Too much liquid in buffer. Air in buffer ... Valve adjusting run out closed. Burr or grit on slides ... Reduced air pressure in recuperator. Packings too tight ...	Operate snifting valve. Operate snifting valve. Open valve. Remove obstruction. Test and adjust pressure. Repack.

NOTE.—Reduced air pressure may be due to air alone, or may be caused by leakage of liquid from recuperator; the precise cause should be ascertained.

(iii) *When guns are resting in action.*

Cool the bore. Depress the gun and allow air to escape from the buffer by means of the snifting valve. Replenish the buffer. Tighten packings if necessary. Test air pressures after the gun has cooled and replenish recuperator if necessary.

5. THE RECUPERATOR.

(i) To charge the recuperator with liquid.

Lash the gun to the cradle in the run out position and depress a few degrees. Remove plugs K and L and open valve M. Pump or pour in at K EXACTLY 8 PINTS OF LIQUID. Close valve M and replace plug K. Elevate and depress the cradle a few degrees several times, then set it horizontal by a clinometer both longitudinally and transversely. THE GUN MUST BE IN THE FULLY RUN OUT POSITION. Open valve M and remove plug K. Leave the cradle in this position until oil ceases to overflow at L. Close valve M and replace the plugs. THE GREATEST CARE MUST BE TAKEN TO SEE THAT THE RECUPERATOR CONTAINS THE CORRECT AMOUNT OF LIQUID.

(ii) To charge the recuperator with air.

Before charging with air it is important to see that the securing collar is on the recuperator ram, in order to prevent the ram from being forced out to the rear when under pressure, and that the correct quantity of liquid is in the recuperator. Then proceed as follows: Attach the air pump to the bracket on the trail, depress the cradle a few degrees, remove plug L and attach the adapter and pressure gauge; connect the pump pipe to the adapter, open by-pass valve M and pump until the gauge registers 710 lbs. a sq. in. Close valve M, disconnect the pipe from the adapter, and place the cap on the adapter. Let the pressure down to 700 lbs. a sq. in. by opening valve M and slackening the cap on the adapter.

Close valve M, remove the adapter with pressure gauge, and replace plug L. The lashing may now be removed.

When charging by air bottle, care must be taken to open the cock gradually to avoid damage to the gauge.

(iii) **To test the air pressure.**

Remove plug L and screw in the adapter, blanking the outer end with the cap. Screw the gauge into the adapter. Open valve M, and the gauge should register 700 lbs. a sq. in. If correct, close valve M, remove the adapter and gauge and replace plug L. If the pressure is not correct, proceed as in (v).

(iv) **To ascertain the amount of liquid in the recuperator system.**

Remove plug L. Set the elevation indicator to zero. Set the gun horizontal, longitudinally and transversely, by means of the field clinometer. Open valve M slowly; if oil spray issues from L, the liquid level is correct. If air only issues, close valve M. Elevate the gun successively to angles of 45 min., 1 deg. 20 min., 1 deg. 40 min., and 2 deg. 30 min. by means of the right elevating handwheel and elevation indicator. Note the angle of elevation at which oil spray issues on valve M being opened. The amount of liquid lost is derived from the following table:—

Liquid Lost.	Elevation at which oil spray issues.
1 pint.	45 min.
2 pints.	1 deg. 20 min.
3 pints.	1 deg. 40 min.
4 pints.	2 deg. 30 min.

Note.—The gun should not be worked with a greater loss of liquid than 2 pints.

(v) **To replenish air pressure lost by leakage.**

Proceed as for charging the recuperator with air, but before opening valve M to admit air to the reservoir, pump pressure in pipe to 700 lbs. a sq. in.

6. THE BUFFER.

(i) **To fill the buffer.**

Elevate the gun to 10 degrees. Remove plugs N. and O. Pour in oil at O until it overflows at N. Replace plug N and continue filling till oil overflows at O. Replace plug O.

About 5 pints of oil are required to charge the buffer.

(ii) **Regulating gear.**

This gear is to be used to shorten the length of recoil when the latter becomes excessive through wear in the piston or recoil valve.

When the scale is set at 2 a recoil of 43 inches should be expected. This setting is recommended with an equipment which is in good order. If it becomes necessary to reduce the length of recoil, the lever should be moved in the direction of the arrow. Each graduation on the scale corresponds to a difference of one inch in recoil.

(iii) **Glands.**

Glands should be tightened when necessary. It is better to do this when the cradle is warm, as the packings then seat better. They should not be over-tightened, as this may distort the packings and also cause seizure.

To tighten up the glands.—Pull the spring catch to the front, thus disengaging it from the slot in the gland, and tighten up the latter by means of a tommy inserted through the opening in the cap.

If a leakage occurs at the glands and tightening up does not prevent it, a supplementary packing ring should be used ; or if a supplementary packing is already in use, the defective packing should be renewed.

7. THE AIR PUMP.

Before starting work, an external examination should be made to see that the pump is clean and serviceable.

When assembling care must be taken to see that all parts are clean and well lubricated. Working parts will require further lubrication during pumping.

To obtain the best results it is essential to employ a full stroke in working the pump, i.e., from stop to stop.

When charging a system it is best to continue without a stop until the desired pressure is reached, changing the men if fatigued. If a stop is unavoidable, note the pressure and close valve M. Before continuing, pump the pressure in the pipe up to the pressure noted before, opening valve M.

If there is any falling off in the working pressure, examine the valves. If gritty, the valves and springs should be removed and cleaned. If necessary, valves should be lightly ground in and coated with thin oil. If this does not improve the efficiency of the pump, the piston should be removed and the rings examined and tried in the cylinders. If the spring of these rings has been destroyed, they must be changed.

The pump must be replaced in its box immediately after use.

The pump should be worked a few strokes daily to ensure that the packings are kept under pressure.

1.—Stores Carried on Carriage:—

Articles.	No.	Where carried.
Axe, pick	1	Under trail.
Brush, breech screw	1	In tool case, front of shield.
Can, lubricating, No. 9	1	In wood block, front of
Carrier, No. 7 dial sight, No. 2	1	On shield, in case. [shield.
Cases, keys, setting fuze	1†	} On shield.
Cases, field clinometer, No. 1	1†	
Cases, No. 7 dial sight and carrier, Q.F. 13 and 18-pr.	1	
Cases, sight clinometer	1†	
Cases, spare parts	1	} On off tensile stay.
Cases, spare sight clinometer	1*	
Cases, tools	1	On shield.
Cleaner, pinsaba, No. 18	1	} In tubular trail.
Cleaner, wool, No. 1	1	
Clinometer, field	1†	On rear of shield.
Clinometer, sight ... (spare)	1*	In case, on off tensile stay.
Clinometer, sight	1	In case, on shield.
Covers, breech	1	} On gun; when not in use
Covers, muzzle, No. 1	1	
Covers, eccentric brake gear	1	} strapped to rear of shield.
Drift, No. 12	1	
Gauge, striker protrusion, No. 1	1	} In leather case, on shield.
Hammer, claw, 24-oz.	1	
Implements, ammunition—		In tool case, front of shield.
Keys, No. 18 (setting-fuze)	2	In tool case.
Indicator, fuze, Q.F. 18-pr.	1	On shield.
Key, removing jammed cartridge, Q.F. 13 and 18-pr.	1*	In tool case, "A" sub-section.

* Each battery.

† Components of carriage.

‡ Each section.

Stores carried on carriage—*cont.*

Articles.	No.	Where carried.
Lanyard, firing, No. 15	1	In tool case, front of shield.
Oil, Rangoon pint	‡	In lubricating can.
Ordnance—		
Catch, retaining breech screw ...	1§	In leather case, on shield.
Pin, axis, catch, B.M. lever ...	1†	
Pins, firing	2	
Springs, main	1§	
Springs, safety catch	1§	
Springs, trigger	2†	
Springs, tripping-piece	1	In tool case, front of shield.
Strikers	1	
Pliers, flatnose pair	1	On rear of shield.
Posts, aiming	2	
Ropes, drag, heavy 30-ft. ... pair	1	In leather case, on shield.
Screwdriver, G.S., 4-in.	1	Near tensile stay.
Shovels, G.S.	1	On shield in case
Sight, dial, No. 7	1	In tool case, front of shield.
Spanners, adjustable, 15-in. ...	1†	
Spanners, adjustable, 11-in. ...	1	In tool case (or cases) on axletree.
Spanner, No. 244	1	
Spanner, hydraulic buffer, No. 123...	1	
Spanner, hydraulic buffer, No. 169...	1	
Spanner, hydraulic buffer, No. 170...	1	
Spanner, hydraulic buffer, No. 171...	1	
Spanner, hydraulic buffer, No. 174...	1	In case (or cases) on axletree.
Spanner, hydraulic buffer, No. 172...	1	
Spanner, hydraulic buffer, No. 173...	1	In case (or cases) on axletree.
Spanner, hydraulic buffer, No. 176...	1	
Tommy, No. 37	1	In case (or cases) on axletree.
Tommy, No. 40	1	

† 8 each battery. ‡ Each section. § 1 every 3 guns.

2.—Stores carried on limbers :—

Articles.	Carriages.	Wagons.	Where carried.
Axe, felling curved helve ...	1	—	On platform board.
Axes, pick ...	1	2	Under limber.
Bar, supporting draught pole, No. 3 ... (spare)	1	1*	On platform board.
Blankets, G.S. ...	2	2	On top of limber box.
Boxes, grease, 3-lb. ...	1	1	Under platform board, near side.
Boxes, dust cap and drag washer	1†	—	On footboard, near side.
Breastpiece ...	1	1	On platform board.
Brush, water, carriage ...	1	1	Under platform board, near side.
Buckets, water, G.S., canvas ...	12	6	In wire net receptacles.
Cans, lubricating, No. 3 (for Rangoon oil) ...	1	1	Under platform board, off side.
Cans, lubricating, No. 3 (for mineral oil) ...	1	1	
Caps, dust, 2nd class "C" capped wheels, No. 1 (spare)	1†	—	In box on footboard, near side.
Carrier, ammunition, Q.F. 13 and 18-pr.	1	1	Under blankets.
Cartridges, Q.F. 18-pr. ...	24	38	In ammunition box.
Clips, cartridge, Q.F. 18-pr. ...	24	38	On cartridges.
Cloths, sponge ...	5	5	Under tray, small stores.
Collars, adjusting, 2nd class "C" capped wheels (spare)	1†	—	Tray, small stores, lower.
Covers, breech ...	2	2	On rifles, front of ammuni- tion box.
Crowbars, 4-ft. 1-in. ...	1†	—	On platform board.

* Each sub-section.

† Each section.

‡ Each Battery.

Stores carried on limbers—*cont.*

Articles.	Carriages.	Wagons.	Where carried.
Files, smooth, flat, 6-in. ...	1	—	} Tray, small stores, lower.
Files, smooth, hand, safe-edge, 8-in.	1	—	
Files, 2nd cut, half-round, 6-in....	1	—	
Grease, lubricating ... lbs.	3	3	In grease box.
Handle, air pump ...	1†	—	On platform board.
Handle, file, small ...	1	—	Tray, small stores, lower.
Hooks, bill ...	—	1	Under platform board, off side.
Implements, ammunition—			
Holder, cartridge ...	—	1§	Under tray, small stores.
Keys, No. 17 (fixing fuze) ...	1	1	Tray, small stores, lower.
Implements, ammunition—			
Keys, No. 27 (primer) ...	—	1§	Tray, small stores, lower.
Keys, No. 18 (setting fuze) ...	2	2	Tray, small stores, lower.
Keys, split, flat, 1-in. x 4-ins.	1	—	Tray, small stores, lower.
(spare)			
Keys, spring lock ...	1	1	On outside of lid in pocket.
Line, Hambro' ...	1	1	On platform board.
Oil, mineral (for buffers) pints	2	2	} In cans, lubricating.
Oil, Rangoon ... pints	1½	1½	
Pins, capsquare ... (spare)	1||	—	Tray, small stores, lower.
Pins, keep, split, ½-in. x 1½-in....	1	—	} Tray, small stores, upper (in box, spare springs, &c.)
Pins, keep, split, ¾-in. x 1½-in....	1	—	
Pins, keep, split, ¾-in. x 1½-in.	3	—	
(spare)			
Pins, keep, split, ½-in. x 1-in. ...	2	—	
Pins, keep, split, ½-in. x 2½-ins....	1	—	
Pins, keep, split, ½-in. x 1½-in.	9	—	
(spare)			
Pins, keep, split, ½-in. x 1-in. ...	1	—	

† Each section.

§ 1 every 3 guns.

|| Each battery.

Stores carried on limbers—*cont.*

Articles.	Carriages.	Wagons.	Where carried.
Pins, keep, split, $\frac{1}{4}$ -in. \times 5-ins. ...	1	—	Tray, small stores, lower.
Pins, linch, 2nd class "C" capped wheels (spare)	1§	—	Tray, small stores, lower.
Pin, locking, shield pawl (spare)	1||	—	} Tray, small stores, lower.
Pin, draught, No. 3 (spare)	1	—	
Plate, locking nut, pipe box, 2nd class "C" wheels (spare)	1§	—	Tray, small stores, upper.
Pump, air, two stage, horizontal, No. 2	1§	—	In box, strapped on top, at rear of limber box.
Primers, percussion, Q.F. cartridges, No. 1 (in tin box)	—	4	Tray, small stores.
(spare)	—	—	
Ropes, drag, light G.S. ... pair	—	1	On platform board.
Screwdriver, G.S., 4-in. ...	—	1	Tray, small stores.
Screws, lubricating hole, boss-head $\frac{1}{4}$ -in. \times $\frac{1}{4}$ -in. (spare)	2	—	Tray, small stores, upper (in rectangular box).
Shovels, G.S. ...	1	2	On platform board.
Spades ...	1	2†	On off side of limber box.
Springs, shield pawl, Q.F. 13 and 18-pr. (spare)	1||	—	Tray, small stores, lower.
Springs, sight olinometer (spiral) Q.F. 18-pr. (spare)	1	—	Tray, small stores, upper (in rectangular tin box).
Springs, plunger, traversing lever, Q.F. 18-pr. (spare)	1††	—	Tray, small stores, upper.

† One each side of limber box.

|| Each battery.

§ Each section.

†† 1 every 3 guns.

Stores carried on limbers—*cont.*

Articles.	Carriages.		Where carried.
	Carriages.	Wagons.	
Straps, supporting, front (spare)	2	2	} On platform board.
Straps, supporting, rear (spare)	1	1	
Straps, trace ... (spare)	2	2	
Springs, catch, limber and perch hooks (spare)	1†	—	Tray, small stores, upper.
Springs, disc, No. 62 (spare)	1**	—	} Tray, small stores, lower.
Springs, firing gear (spare)	1**	—	
Swingletrees, Nos. 10a or 11 (spare)	1	1	On platform board.
Traces, saddlery ... pairs	1	1	} On platform board.
Tugs, trace... (spare)	2	2	
Washers, drag, 2nd class "C" capped wheels ... (spare)	1*	—	In box on footboard, near side.
Wrench, adjusting, No. 7 dial sight and carrier	1*	—	Tray, small stores, upper.

* Each section.

† When limbers are fitted with new pattern hooks.

** 4 each battery.

3. Stores carried on wagons :—

Articles.	No.	Where carried.
Bar, testing, rocking-bar sight, Q.F. 13 and 18-pr.	1(a)	In box, on platform board.
Blankets, G.S.	2	On top of ammunition box.
Box, bar, testing, rocking-bar sight, Q.F. 13 and 18-pr.	1(a)	On platform board.
Box, lamp, siege, to hold 2	1	On footboard.
Boxes, grease, 3-lb.	2	Under platform board.
Bush, testing, sighting, 3·3-in. (c)	1†	In tray, small stores.
Cartridge, Q.F. 18-pr.	38	In ammunition box.
Cases, saw, hand	2	Lid of ammunition box.
Catch, limber hook, No. 2 (spare)	1*§	In tray, small stores.
Clip, cartridge, No. 4	38	On cartridges.
Grease, lubricating lbs.	6	In boxes.
Handspike, common, 6-ft.	1	Under perch.
Implements, ammunition—		
Keys, No. 18 (setting fuze)	2	In tray, small stores.
Indicator, fuze, Q.F. 18-pr.	1(b)	On top of ammunition box of firing battery wagons.
Kettles, camp, oval, 12-qts.	—	Under wagon, as required.
Lamps, siege	2	In box.
Lashings, tarred, 1-in. × 20-ft.	1†	} Under wagons, as required.
Lashings, tarred, 1-in. × 10-ft.	3†	

* Each section. § When limbers are fitted with new pattern hooks.

† For each ammunition wagon carrying a spare No. 18 pole.

‡ Each battery, carried in A. sub-section.

(a) Each battery, carried in F. sub-section.

(b) Each sub-section.

(c) When existing bushes become unserviceable they will be considered obsolete.

Stores carried on wagons—cont.

Articles.	No.	Where carried.
Line, white, 1-lb. skeins	1	Under tray, small stores.
Nut, actuating screw, carriage, Q.F. 13 and 18-pr. ... (spare)	1*	In tray, small stores.
Ordnance, Q.F.— Bush, firing hole ... (spare)	1†	In tray, small stores.
Pole, draught, No. 18 ... (spare)	1	Under perch.
Rope, picketing, 66-ft.	1	On platform board.
Saws, hand, 26-in.	2	In cases, saw, hand.
Spanner, No. 93	1(b)	In case, side of ammunition box.
Spanner, No. 267	1(a)	In box, on platform board.
Spindle, catch, limber hooks, No. 2 (spare)	1*§	In tray, small stores.
Spring, catch, limber and perch hook (spare)	1§	In tray, small stores.
Spring, spiral (clock type), range gear, Q.F. 13 and 18-pr. (spare)	1*	In tray, small stores.
Valise, horse-shoe	1††	Front of ammunition box.
Valises, tools, shoeing, wheelers or saddlers	—††	Front of ammunition box.

* Each section. † Each battery carried in A sub-section.

§ When limbers are fitted with new pattern hooks.

(a) Each battery, carried in F sub-section. (b) Each sub-section.

†† Valises :—

Horseshoe—1 on each ammunition wagon A to F sub-sections.

Saddlers No. 1.—1 on one of the wagons A, C and E sub-sections.

Tools { Shoeing.—1 on one of the wagons A, C, D and F sub-sections.

Fitters or Wheelers No. 1.—1 on one of the wagons B, D and F sub-sections.

SUPPLEMENT FOR GUNS ON MARK I CARRIAGE.

CHAPTER I.

No. 1.

TO ASCERTAIN if the buffer is properly FILLED, the gun is unlimbered and elevated a few degrees. The filling-hole plug on the tank and the air-valve is removed. Oil should be seen in the tank, which, however, should never be quite full.

If a tank is not fitted, the gun is unlimbered and brought horizontal. The filling-hole plug is removed, and the control plunger should be seen to be just covered with oil.

CHAPTER II.

Section 18. The following example will be taken as a guide.

Example :—

Angle on sight clinometer (say)	...	...	+	1° 54'
Correction for droop and jump (say)	...	...	+	10'
Angle to report to section commander	...	...		<hr/>2° 4'

CHAPTER IV.

Test 3. Jump will be taken as -7 minutes unless it has been determined for the particular equipment.

CHAPTER V.

1. "List of lubricators"—*delete* "recuperator, bottom guide."

RECUPERATOR AND BUFFER.

General precautions.

(i) Before firing.

Care should be taken to see that the buffer is correctly charged, that there is no leakage at the gland, that the cylinder is firmly nutted up to the lug of the gun, and the piston rod to the front cap.

(ii) In action.

During action the functioning of the system should be carefully watched and steps taken at once to remedy defects.

The following are the more common faults:—

For any given fault the causes and remedies are set out in the sequence which should be followed to ascertain the particular cause and remedy, so that the simplest and most readily removed causes may be eliminated before proceeding to the more difficult.

Fault.	Cause.	Remedy.
Recoil violent ...	Air in buffer cylinder ...	Open air valve.
	Insufficient liquid in buffer system.	Fill buffer and tank.
Recoil excessive ...	Weak or broken springs	Replace.
	Wear of piston ...	Replace.
Recoil short ...	Buffer nearly empty ...	Fill buffer and tank.
	Damaged slides ...	Examine and repair.
	Packings too tight ...	Repack.

In action—continued.

Fault.	Cause.	Remedy.
Run out slow ...	Hot air or gas in buffer cylinder.	Elevate gun and unscrew air valve. If without tank, depress the gun and unscrew the control plunger a few turns.
	Burrs or grit on slides ...	Remove obstruction.
	Weak or broken springs	Replace.
	Packings too tight ...	Repack.
	Valve in tank out of order.	Rectify.
Run out violent ...	Insufficient liquid in buffer cylinder	Fill buffer and tank.
Failure to run out ...	Burrs or grit on slides ...	Remove obstruction.
	Weak or broken springs	Replace.
	Packings too tight ...	Repack.

(iii) When guns are resting in action.

Cool the bore. Allow air to escape from the buffer by means of the air valve, gun elevated. If without tank, depress the gun and unscrew the control plunger a few turns. Replenish the buffer. Tighten packings if necessary.

(MARK I CARRIAGE.)
APPENDIX.

CARRIAGE OF STORES.

1. Stores carried on carriage:—

Articles.	No.	Where carried.
Axe, pick	1	Under trail.
Brush, breech screw	1	In tool case, front of shield.
Can, lubricating, No. 9	1	In wood block, front of shield.
Carrier, No. 7 dial sight, No. 2	1	On shield, in case.
Case, keys, setting fuze	1†	On shield.
Case, field clinometer, No. 1	1*	On shield.
Case, No. 7 dial sight and No. 2 carrier, Q.F. 13 and 18-pr.	1	On shield.
Case, sight clinometer	1†	On shield.
Case, spare parts	1	On shield.
Case, spare sight clinometer... ..	1§	On off tensile stay.
Case, tools	1	On axletree.
Cleaner, piassaba, No. 18	1	In tubular trail.
Cleaner, wool, No. 1	1	In tubular trail.
Clinometer, field	1*	On front of shield.
Clinometer, sight ... (spare)	1§	In case, on off tensile stay.
Clinometer, sight	1	In case, on shield.
Cover, breech	1	} On gun; when not in use, strapped to rear of shield.
Cover, muzzle, No. 1	1	
Cover, eccentric, brake gear... ..	1	On eccentric of brake gear.
Drift, No. 12	1	In leather case, on shield.
Funnel, filling, cylinder, No. 1	1	In tool case, front of shield.
Gauge, striker protrusion, No. 1	1	In leather case, on shield.
Hammer, claw, 24-oz.	1	In tool case, front of shield.
Implements, ammunition—		
Keys, No. 18 (setting fuze)	2	In tool case.

* Each section. † Components of carriage. § Each battery.

Stores carried on carriage—*cont.*

Articles.	No.	Where carried.
Indicator, fuze, Q.F., 18-pr....	1	On shield.
Key, removing jammed cartridges, Q.F. 13 and 18-pr.	1§	In tool case, "A" sub-section.
Lanyard, firing, No. 15 ...	1	In tool case, front of shield.
Oil, Rangoon pints	‡	In lubricating can.
Ordnance—		
Catch, retaining, breech screw (spare)	1‡	In leather case, on shield.
Pin, axis, catch, B.M. lever (spare)	1*	In leather case, on shield.
Pins, firing (spare)	2	In leather case, on shield.
Springs, main (spare)	1‡	In leather case, on shield.
Springs, safety catch (spare)	1‡	In leather case, on shield.
Springs, trigger ... (spare)	2‡‡	In leather case, on shield.
Springs, tripping piece (spare)	1	In leather case, on shield.
Striker (spare)	1	In leather case, on shield.
Pliers, flat nose pair	1	In tool case, front of shield.
Posts, aiming	2	On rear of shield.
Ropes, drag, heavy, 30-ft. pair	1	On rear of shield.
Screw driver, G.S., 4-in. ...	1	In leather case, on shield.
Shovels, G.S.	1	Tensile stay.
Sight, dial, No. 7	1	On shield, in case.
Spanner, adjustable, 15-in. ...	1*	In tool case, front of shield.
Spanner, adjustable, 11-in. ...	1	In tool case, front of shield.
Spanner, No. 244	1	In tool case, front of shield.
Spanner, hydraulic buffer, No. 122...	1	In tool case, front of shield.
Spanner, hydraulic buffer, No. 123...	1	In tool case, front of shield.
Spanner, hydraulic buffer, No. 129...	1	In tool case, front of shield.
Spanners, H.B. No. 162 with tommy, No. 37 (a)	1	In tool case, front of shield.
Spanners, H.B., No. 163 (a)....	1	In tool case, front of shield.
Spanners, H.B., No. 165, <i>Mark II</i> (a)	1	In tool case, front of shield.

* Each section.

‡ 1 every 3 guns.

(a) Carriages fitted with tank for hydraulic buffer. § Each Battery.

‡‡ 8 each Battery.

2. Stores carried on limbers :—

Articles.	Carriages.	Wagons.	Where carried.
Axes, felling, curved helve ...	1	—	On platform board.
Axes, pick ...	1	2	Under centre fatchel limber.
Bar, supporting draught pole, No. 3 (spare)	1	1*	On platform board.
Blankets, G.S. ...	2	2	On top of limber box.
Box, grease, 3-lb. ...	1	1	Under platform board, near side.
Box, dust cap, and drag washer	1½	—	On top of limber box, at rear.
Breast piece ...	1	1	On platform board.
Brushes, water, carriage ...	1	1	Under platform board, near side.
Buckets, water, G.S., canvas ...	12	6	In wire net receptacles.
Cans, lubricating, No. 3, for Ran- goon oil	1	1	Under platform board, off side.
Cans, lubricating, No. 3, for mineral oil	1	1	
Cap, dust, 2nd class, "C," capped wheels, No. 1 (spare)	1½	—	In box, strapped on top, at rear, of limber box.
Carrier, ammunition, Q.F. 13 and 18-pr.	1	1	Under blankets.
Cartridges, Q.F. 18-pr. ...	24	38	In ammunition box.
Case, No. 3, lubricating can ...	2	2	Under platform board, off side.
Clips, cartridge, No. 4. ...	24	38	On cartridges.
Cloths, sponge ...	5	5	Under tray, small stores.
Collars, adjusting, 2nd class, "C," capped wheels (spare)	1½	—	Tray, small stores, lower.
Covers, breech ...	2	2	On rifles, front of ammuni- tion box.
Crowbars, 4-ft. 1-in. ...	1½	—	On platform board.
Files, smooth, flat, 6-in. ...	1	—	Tray, small stores, lower.

* Each sub-section.

§ Each section.

|| Each battery.

Stores carried on limbers—*cont.*

Articles.	Carriages.	Wagons.	Where carried.
Files, smooth, hand, safe-edge, 8-in.	1	—	Tray, small stores, lower.
Files second cut, half round, 8-in.	1	—	Tray, small stores, lower.
Grease, lubricating ... lbs.	3	3	In grease box.
Handle, file, small ...	1	—	Tray, small stores, lower.
Hooks, bill ...	1	1	Under platform board, off side.
Implements, ammunition—			
Holder, cartridge ...	—	1†	Under tray, small stores.
Keys, No. 17 (fixing fuze) ...	1†	1	Tray, small stores.
Keys, No. 27 (primer) ...	—	1†	Tray, small stores.
Keys, No. 18 (setting fuze) ...	2†	2	Tray, small stores.
Key, split, flat, 1' x 4" (spare)	1	—	Tray, small stores, lower.
Line, Hambro ...	1	1	On platform board.
Oil, mineral (for buffers) ... pts.	2	2	In cans, lubricating.
Oil, Rangoon ... pts.	1‡	1‡	In cans, lubricating.
Pins, capequaro ... (spare)	1||	—	Tray, small stores, lower.
Pins, keep, split—			
1/8 in. x 1 1/4 in. ...	1	—	
1/8 in. x 1 1/4 in. ...	1	—	
1/8 in. x 1 1/4 in. ... (spare)	3	—	Tray, small stores, upper
1/8 in. x 1 in. ...	2	—	(in "box, spare springs, &c.").
1/8 in. x 2 1/4 in. ...	1	—	
1/8 in. x 1 1/4 in. ... (spare)	9	—	
1/8 in. x 1 in. ...	1	—	
1/8 in. x 5 in. ...	1	—	Tray, small stores, lower.
Pins, lynch, 2nd class "C" capped wheels (spare)	1§	—	Tray, small stores, lower.
Pins, locking shield pawl (spare)	1||	—	Tray, small stores, inner.
Pins, draught, No. 3 ... (spare)	1	—	Tray, small stores, lower.

† Lower tray.
§ Each section.

‡ 1 every 3 guns.

|| Each battery.

Stores carried on limbers—cont.

Articles.	Carriages.		Where carried.
	Carriages.	Wagons.	
Plate, locking nut, pipe box, 2nd class "G" wheels (spare)	1§	—	Tray, small stores, upper.
Plugs, filling hole, hydraulic buffer, No 12 (spare)	1§§	—	Tray, small stores, inner.
Primers, percussion, Q.F., cart-ridges, No. 1 (in tin box) (spare)	—	4	Tray, small stores.
Rings, compressed packing, hydraulic buffer (spare)	2	—	Tray, small stores, upper, each in round tin box.
Ropes, drag, light, G.S. ... pairs	—	1	On platform board.
Screw-driver, G.S., 4-in. ...	—	1	Tray, small stores.
Screws, lubricating hole, boss-head, 5-ins. \times $\frac{1}{2}$ in. (spare)	2	—	Tray, small stores, upper (in rectangular box).
Shovels, G.S. ...	1	2	On platform board.
Spade ...	1	2††	On off sides of limber box.
Spring, catch, limber and perch hooks (spare)	1††	—	Tray, small stores, upper.
Springs, disc, No. 62 ... (spare)	1**	—	Tray, small stores, lower.
Springs, firing gear ... (spare)	1**	—	Tray, small stores, lower.
Springs, shield pawl ... (spare)	1||	—	Tray, small stores, lower.
Springs, sight clinometer (spiral) (spare)	1	—	Tray, small stores, upper (in rectangular box)
Springs, plunger, traversing lever (spare)	1§§	—	Tray, small stores, upper.
Straps, supporting, front (spare)	2	2	} On platform board.
Straps, supporting, rear ... (spare)	1	1	
Straps, traco ... (spare)	2	2	On platform board.

§ Each section.

|| Each battery.

†† 1 on each side of body.

** 4 each battery.

††† When limbers are fitted with new pattern hooks.

§§§ 1 every 3 guns.

Stores carried on limbers—*cont.*

Articles.	Carriages.	Wagons.	Where carried.
Stud, retaining stuffing box, hydraulic buffer (spare)	1	—	Tray, small stores, upper (in rectangular tin box)
Swingletree, Nos. 10a or 11 (spare)	1	1	On platform board.
Tools, packing gland, Q.F. 18-pr.			
Collar	1§	—	Tray, small stores, upper (in round tin box).
Plug	1§	—	Tray, small stores, lower.
Tools, withdrawing ring supporting packing, Q.F. 13 and 18-pr.	1*	—	Tray, small stores, upper.
Traces, saddlery pairs	1	1	On platform board.
Tugs, trace (spare)	2	2	On platform board.
Washers, drag, 2nd Class "C" capped wheels (spare)	1*	—	In box strapped on top at rear of limber box.
Washers, packing, hydraulic buffer sets (spare)	2	—	Tray, small stores, upper (in round tin box).
Wrench, adjusting, No. 7, dial sights and carrier	1§	—	Tray, small stores, upper.

§ Each section.

* Each sub-section.

3. Stores carried on wagons :—

Articles.	No.	Where carried.
Apparatus adjusting, running-out springs, Q.F., 18-pr.	1††	On platform board.
Bars, testing rocking-barsight, Q.F. 13 and 18-pr.	1(a)	In box, on platform board.
Blankets, G.S.	2	On top of ammunition box.
Box, bar testing rocking-bar sight, Q.F. 13 and 18-pr.	1(a)	On platform board.
Box, lamp, siege, to hold 2	1§§	On footboard.
Boxes, grease, 3-lb.	2	Under platform board.
Bush, testing sighting, 3·3-in.	1**	In tray, small stores, A sub-section.
Cartridges, Q.F. 18-pr.	38	In ammunition box.
Cases, saw, hand	2	Lid of ammunition box.
Catches, limber hook, No. 2...(spare)	1*§	In tray, small stores.
Clips, cartridge, Q.F. 18-pr....	38	On cartridges.
Covers, apparatus, adjusting, running-out springs	1††	On platform board.
Grease, lubricating	6	In boxes.
Handspike, common, 6 feet	1	Under perch.
Implements, ammunition—		
Keys, No. 18 (setting fuze)	2	In tray, small stores.
Indicator, fuze, Q.F. 18-pr.	1†	On top of ammunition box of firing battery wagons.
Kettles, camp, oval, 12-quarts	—	Under wagon, as required.
Lamps, siege	2(d)	In box.

** 1 each battery. When existing bushes become unserviceable they will be considered obsolete.

* Each section. †† Each battery, carried in A sub-section.

† Each sub-section. (a) Each battery, carried in F sub-section.

§ When limbers are fitted with new pattern hooks

§§ 4 each battery. (d) 8 each battery.

Stores carried on wagons—cont.

Articles.	No.	Where carried.
Lashing, tarred, 1-in. x 20-feet ...	1†	Under wagon, as required.
Lashing, tarred, 1-in. x 10-feet ...	3†	Under wagon, as required.
Line, white, 1 lb. skins ...	1	Under tray, small stores.
Nut, actuating screw, carriage, Q.F. 13 and 18-pr. (spare)	1*	In tray, small stores.
Ordnance—		
Bush, firing hole ... (spare)	1(b)	In tray, small stores.
Pole, draught, No. 18 ... (spare)	2†	Under perch.
Rope, picketing, 60-feet ...	1	On platform board.
Saws, hand, 26-in. ...	2	In cases, saw, hand.
Spanner, No. 93 ...	1‡	In case, side of ammunition box.
Spanner, No. 267 ...	1(a)	In box, on platform board.
Spindle, catch, limber hook, No. 2 (spare)	1*§	In tray, small stores.
Spring, catch, limber and perch hook (spare)	1§	In tray, small stores.
Spring, spiral (clock type), range gear, Q.F. 13 and 18-pr. (spare)	1*	In tray, small stores.
Valise, horseshoe ...	1	Front of ammunition box.
Valises, tools (shoeing, wheelers, or saddlers)	—	Front of ammunition box.

* Each section.

† For each ammunition wagon carrying a spare No. 18 pole.

‡ Each sub-section.



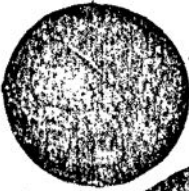

§ When limbers are fitted with new pattern hooks.

(a) Each battery, carried in F sub-section.

(b) Each battery.

Printed under the Authority of His Majesty's Stationery Office
By HARRISON & SONS, LTD., 44-47, St. Martin's Lane, W.C.2.

(H 27/18)Q Wt. 19058—4995/1024 12M 2/23 H & S, Ltd. Gp. 27.

A HUGE FOOTBALL
OUTPUT
leaves outworks each week
for all parts of the World

ROB^t DONKIN & CO^s
 95-97 Chatham Street,
LIVERPOOL.
Delivered by
 1575 ROYAL
 A & C. CO. & S. LIVER
 Established 1850

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Family Allowance.

See also PAY FOR SOLDIERS AND SEPARATION ALLOWANCE.

Field Allowance to the Commander of an Army and to the Commander of an Army Corps or Group of Divisions; **Promotion of Lieutenants** of the Army Veterinary Corps, Special Reserve, and Territorial Force; **Bounty to Soldiers.** Special Army Order, June 23, 1916. 1d. (2d.)
Field Almanac. 1918. 1d. (2d.)

Field Service Manuals:—

Ammunition Column. Divisional. New Armies. 1915. 3d. (3d.)
Artillery. Heavy. (B.L. 60-pr.) Battery and Ammunition Column, Expeditionary Force. 1918. 3d. (3d.)
Artillery. Horse. Brigade. 13-pr. Q.F. 1908. 3d. (3d.)
Cavalry Regiment. Expeditionary Force. 1913. 3d. (3d.)
Engineers. Bridging Train. Expeditionary Force. 1915. 3d. (3d.)
Do. Field Company. Expeditionary Force. 1915. 3d. (3d.)
Do. Field Squadron. Expeditionary Force. 1914. 3d. (3d.)
Do. Works Company. Expeditionary Force. 1910. 3d. (3d.)
Headquarters Units. Expeditionary Force. 1911. 3d. (3d.)
Infantry Battalion. Expeditionary Force. 1914. 3d. (3d.)
Infantry (Mounted) Battalion. Expeditionary Force. 1913. 3d. (3d.)
Medical Service. Army. Expeditionary Force. 1914. 3d. (3d.)
Signal Service. Signal Company (Cable). Expeditionary Force. 1913. 3d. (3d.)
Do. Signal Company (Divisional). Expeditionary Force. 1915. 3d. (3d.)

Field Service Pocket Book. 1914. (Reprinted, with Amendments, 1910). 1s. (11d.); Addendum No. 1, Shortened Form of Service for the Burial of the Dead. 1d. (2d.)

Field Service Regulations:—

Part II. Organization and Administration. 1920. 1s. (10d.)
Do. Amendment, April 1915. 1d. (1d.)
Do. Addendum, Jan. 1917, for the Guidance of Troops operating in France and Belgium. Duties and Responsibilities of the Quartermaster-General, the Director-General of Transportation and the General Officer Commanding Lines of Communication Area. 1d. (1d.)
Do. Additions and Corrections, March, 1917. Duties and Responsibilities of the Engineer-in-Chief, and of Chief Engineers, &c. 1d. (2d.)

Field Works (All Arms). Manual. 1922. (Provisional.) 2s. (2s.)

Financial Instructions in relation to Army Accounts. 1910. (Reprinted, with Amendments to Oct. 1, 1917). (Out of print). 6d. (6d.)

Fire Manual. Army. 1918. 2d. (3d.)

Foods. Analyses and Energy Values of. 6s. (4s. 10d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Franco-German War—continued.

Plans—

- 4. Battle of Colombey-Neuilly. 3d. (5d.)
- 5A. Battle of Vionville—Mars la Tour. Position of Contending Forces at Noon. 3d. (5d.)
- 5B. Battle of Vionville—Mars la Tour. Position of Contending Forces from 4 to 5 p.m. 3d. (5d.)
- 9A. Battle of Sedan. Position of Contending Forces towards Noon. 3d. (4d.)
- 9B. Battle of Sedan. Position of the Germans in the afternoon shortly before the end of the struggle. 3d. (4d.)

See also **Siege Operations.**

French Words and Phrases with English Pronunciation. Notes on French Measures. Abbreviations and Terms used on French Maps, with English equivalents, Short Vocabulary of. 1d. (2d.)

Funds, Associations, Societies, &c., for the Assistance of Serving and Ex-Service Officers, Men, Women and their Dependants. 1922. 6d. (6d.)

German Army. Cavalry. Drill Regulations. 1909. 3d. (4d.)

Do. Foot Artillery. Drill Regulations. Part IV. THE FIGHT. 1909. 3d. (5d.)

Do. Manœuvres Regulations. 1908. 3d. (5d.)

German Constitution. The. (Edition without Notes.) 1920. 6d. (6d.)

Germany. The Campaign of 1866 in:—

With 22 plans in portfolio. 1872. (Reprinted 1907). 6s. (5s. 6d.)

Moltke's Projects for. 1s. (1s.)

Moltke's Correspondence during. Précis. With 4 Plans. 1s. (1s.)

Guernsey and Alderney Royal Militia. Regulations. With the Militia Laws relating to the Islands. Provisional. 3s. (2s. 6d.)

Guns. Drills for:—

275-inch B.L. Gun, Converted Mark I and II Carriage, Mark I. 1s. (10d.)

375-inch Q.F. Howitzer, Mark I Carriage, Mark I. 1s. (10d.)

45-inch Q.F. Howitzer, Marks I and II, Carriage, Mark I. 6d. (6d.)

6-inch B.L. 20-cwt. Howitzer, Mark I, Carriage, Mark I. 4d. (5d.)

6-inch B.L. Marks VII and VII* Guns on Carriages, Garrison C.P., Mark II (L.S.) 1922. 6d. (6d.)

6-inch B.L. Gun, Mark XIX, Carriages Mark VIII and VIIIa. 1s. (10d.)

8-inch B.L. Howitzer, Marks VII, VII*, VII**, and VIII. Carriages, Marks VII and VIIa. 6d. (8d.)

92-inch B.L. Howitzer, Mark II, Carriage, Siege, Mark II. 9d. (8d.)

13-pr. Q.F. Gun, Marks I and II, Carriage, Mark I. 6d. (6d.)

18-pr. Q.F. Gun, Marks I to II, Carriages, Marks I** to II (with Supplement for Mark I Carriage). 6d. (6d.)

18-pr. Q.F., Mark IV. Carriages, Marks III and III**. 4d. (4d.)

60-pr. B.L., Mark I-I**. Carriages, Marks I and III. 6d. (6d.)

Amendments:—Feb. 1922. 1d. (2d.)

45-inch Q.F. Howitzer, Marks I and II, Carriage Mark I (Sept. 1920)

Feb. 1922. 1d. (2d.)

See also **MACHINE GUNS; MUSKETRY REGULATIONS, Part I; and RIFLE, ROSS MAGAZINE.**

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Guns. Handbooks for:—

- 303-inch Hotchkiss Machine. Provisional. 6d. (7d.)
- 303-inch and 303-inch Converted Maxim Machine (Magazine Rifle Chamber), mounted on Carriages, M.G., Infantry, Parapet; Tripod and Cone Mountings. 1911. (Reprinted, with Amendments, 1916). 9d. (2d.); Addenda. 1d. (2d.); Amendments. ½d. (1d.)
- 275-inch B.L. Mule Equipment. 3s. 6d. (2s. 11d.)
- Stokes 3-inch Trench Mortar. M.L. Land Service. 1919. 1s. 6d. (1s. 4d.)
- 37-inch Q.F. Mountain Howitzer. Mark I. 1921. 3s. (2s. 6d.)
- 45-inch Q.F. Howitzer. Addenda and Corrigenda No. 3. 6d. (6d.)
- 6-inch B.L. Mark XIX Gun on Travelling Carriage. Land Service. 1920. 4s. (3s. 4d.)
- 6-inch B.L. 24 cwt. Howitzer. Mark I. (in the press)
- 6-inch M.L. Trench Mortars, Marks I, II, and III. Land Service. 1920. 1s. (11d.)
- 8-inch B.L. Howitzer. Marks VI-VIII. 7s. (5s. 7d.)
- 92-inch B.L. Howitzer. Marks I and II. 1920. 3s. (2s. 7d.) Amendments No. 2. Sept. 1922. 3d. (3½d.)
- 6-pr. Q.F. Guns on Casement Mountings. 1920. 2s. 6d. (2s. 1d.)
- 18-pr. Q.F. Marks I, I*, II, and II*, on Carriages, Field, Mark I. Land Service. 1921. 2s. 6d. (2s. 2d.) Amendments No. 1. Sept. 1922. Gratis.
- Do. on Carriages, Field, Marks I*, I** and II. Land Service. 1922. 3s. 6d. (2s. 11d.) Amendments No. 1. Sept. 1922. Gratis.
- 18-pr. Q.F. Gun, Mark IV on Carriages, Field, Marks III, III*, III**, and IV. Land Service. 1921. 5s. (4s. 1d.) Amendments (Nos. 1 and 2). Each 1d. (2d.)
- 60-pr. B.L. Marks I to I** Guns, on Marks I and III Field Carriages. (Land Service.) 1921. 6s. 6d. (5s. 2d.) Amendments No. 1. July 1922. 1d. (1½d.)
- 60-pr. B.L. Marks II and II* Guns, on Mark IV Field Carriage. 10s. 6d. (8s. 2d.) Amendments No. 1. 2d. (2½d.); Amendments No. 2. 2d. (2½d.)

Health of the Army. Report on the, for the year 1914. 10s. (7s. 4d.)

Historical Records of the British Army:—

- Horse Guards. 6s. (4s. 2d.)
- Dragoon Guards, 3rd and 7th. Each 4s. (3s.)
- Dragoons, 1st, 3rd, 14th, and 16th. Each 4s. (3s. 4d.)
- Do. 13th. 3s. (2s. 8d.)
- Marine Corps. 3s. (2s. 6d.)
- Foot, 8th, 10th, 11th, 12th, 13th, 15th, 16th, 17th, 18th, 19th, 21st, 22nd, 36th, 39th, 46th, 53rd, 67th, 71st, 72nd, 73rd, 74th, 86th, 87th, and 92nd. Each 4s. (3s. 4d.)
- Do. 14th, 56th, 61st, 70th, and 88th. Each 3s. (2s. 6d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets see top of page 1.)

Histories, Short, of the Territorial Regiments of the British Army. 67 numbers, each 1d. (2s.) In one volume, 5s. (4s. 9d.)

Do. The Scots Guards. 1d. (1d.)
Do. The 6th (Inniskilling) Dragoons. (Out of print). 1d. (1d.)
Do. Revised Editions. 1d. (1d.) each :—

Alexandra, Princess of Wales's Own (Yorkshire Regiment).	The Oxfordshire and Buckinghamshire Light Infantry.
The Bedfordshire Regiment.	The Prince of Wales's Leinster Regiment (Royal Canadians).
The Black Watch (Royal Highlanders).	The Prince of Wales's Own (West Yorkshire Regiment).
The Cameronians (Scottish Rifles).	The Prince of Wales's Volunteers (South Lancashire Regiment).
The Cheshire Regiment.	The Princess Charlotte of Wales's (The Royal Berkshire Regiment).
The Duke of Cornwall's Light Infantry.	The Princess Louise's Argyll and Sutherland Highlanders.
The Duke of Wellington's West Riding Regiment.	The Queen's (Royal West Surrey Regiment).
The Durham Light Infantry.	The Royal Inniskilling Fusiliers.
The East Lancashire Regiment.	The Royal Sussex Regiment.
The East Surrey Regiment.	The Royal Welsh Fusiliers.
The Hampshire Regiment.	The South Staffordshire Regiment.
The Highland Light Infantry.	The Suffolk Regiment.
The King's Own (Royal Lancaster Regiment).	The Welsh Regiment.
The King's Own Scottish Borderers.	The Worcestershire Regiment.
The Lancashire Fusiliers.	
The Leicestershire Regiment.	
The Loyal North Lancashire Regiment.	
The Northamptonshire Regiment.	

History of the Great War. Based on Official Documents. Medical Services, Diseases of the War. Vol 1. 21s. (10s. 9d.)

Horse. Field, Pack, Medium, and Heavy Artillery. Instructions for Practice (including Movable Armament). Feb. 1921. 3d. (3d.)

Horses. Notes on the Feeding, Management, and Issue of Army. March 1916. 1d. (2d.) See also ANIMAL MANAGEMENT.

Hospitals, Military Families', Nursing Staff Regulations. Dec. 1909. 1d. (1d.) See also NURSING SERVICE and TERRITORIAL FORCE.

Hostilities without Declaration of War from 1700 to 1870. 2s. (1s. 7d.)

Hygiene. Manual of Elementary Military. (Reprinted 1921.) 1s. (1s. 1d.)

Hygiene. Manual of Military. 1921. 1s. (1s. 1d.)
See also PHYSIOLOGY and SCHOOLS.

Indian Empire. The. A Short Review and some Hints for the use of Soldiers proceeding to India. 6d. (7d.)

Do. Amended 1921 Version 6d. (6d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

- Infantry Training.** (4-Company Organization.) 1914. (Reprinted 1916.) 6d. (7d.)
- Do.** Amendments, July, Aug. 1918; Dec. 1918. Each 1d. (2d.)
- Do.** Vol. 1. Training 1922. Provisional. 1s. (11½d.)
- Do.** „ 2. War (Provisional). 1921. 1s. 6d. (1s. 3d.)
- Injuries and Diseases of War.** Manual based on experience of the present Campaign in France. Jan. 1918. 9d. (9d.)
- Institutes. Garrison and Regimental.** Rules for the Management of. 1916. 1d. (2d.)
- Italian Cavalry Training Regulations.** 1911. Training for Marches, Tactics of Minor Units, and Training of Patrols. Translated. 4d. (4d.)
- Jamaica.** Standing Orders. 1912. 1s. (11d.)
- Jersey. Royal Militia of the Island of.** Regulations. 1914. With the Jersey Militia Law, 1908. 1s. 3d. (1s. 2d.)
- King's Regulations and Orders for the Army.** 1912. (Reprinted, with Amendments published in Army Orders up to Aug. 1, 1914.) (Reprinted 1918.) 1s. 8d. (1s. 8d.); Amendments published in Army Orders between Sept. 1, 1914 and Aug. 1, 1918. 1d. (2d.); Amendments published in Army Orders between Sept. 1, 1918 and March 1, 1918. 1d. (2d.); Ditto, between March 1, 1918, and April 30, 1920. 3d. (6d.); Ditto, March 1920. 2d. (3d.); Ditto, May 1920. 1d. (2d.); Ditto, Jan. 1921. 1d. (2d.); Ditto, up to July 31, 1921. 6d. (6d.); Ditto, Nov. 1921. 1d. (2d.); Ditto, March 1922. 1d. (2d.); Ditto, Aug. 1922. 3d. (3½d.)

Kit Plates:—

Artillery. Royal:—

8. Garrison. Kit laid out for Inspection. 1909. 2d. (3d.)
10. Do. Kit in Barrack Room. 1909. 2d. (3d.)

Cavalry. 1891. 1d. (2d.)

Engineers. Royal:—

1. Dismounted. Details of Shelf and Bedding, with Marching and Drill Orders ready to put on. 1914. Each 1d. (2d.)
2. Dismounted. Full Kit laid out for Inspection in Barrack Room. 1914. 1d. (2d.)
4. Mounted N.C.O. or Driver and Field Troop Sapper. Full Kit laid out for Inspection in Barrack Room. 1910. 1d. (2d.)
5. Mounted. Detail of Shelf and Bedding. 1910. 1d. (2d.)
6. Driver, with pair of Horses. Field Kit laid out for Inspection on Parade, including Articles carried in Valise in Baggage Wagon. 1915. 1d. (2d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Kit Plates—continued.

- Infantry.** Highland. 1884. 1d. (2d.)
- Medical Corps. Royal Army.** Kit in Barrack Room. 1913. 2d. (3d.)
- Ordnance Corps. Army.** For Guidance at Marching Order and Kit Inspections. 2d. (3d.)
- Large Formations.** The Operations of. (Conduite des Grandes Unités.) Translated from the Field Service Regulations of the French Army, dated Oct. 28, 1913. 6d. (8d.)
- Law. Military.** Manual of. 1914. (Reprinted 1917.) 3s. 6d. (3s. 8d.)
- Do.** Amendments, May 1919. 1d. (2d.)
- Machine-Gun Company Training:—**
 - Infantry.** 1917. Provisional. To be read in conjunction with Infantry Training and Musketry Regulations. 6d. (8d.)
- See also* MUSKETRY REGULATIONS, PTS. I AND II, AND RIFLE, ROSS MAGAZINE.
- Machine Guns and Small Arms, '303-inch.** Nomenclature of Parts, Stripping, Assembling, Action, Jams, Missfires, Failures, and Inspection of. Revised Edition. 1917. 6d. (7d.)
- Machine Gun Training.** 1921. (Provl.) 1s. 6d. (1s. 3d.)
- Magazine Regulations.** 1922. 1s. 6d. (1s. 3½d.)
- Magazines and Care of War Matériel.** Regulations for. 1913 (Reprinted with Amendments published in Army Orders up to March 31, 1917). 1s. 6d. (1s. 3d.)
- Malaria.** Observations on, by Medical Officers of the Army and Others. (With Plates and Diagrams.) 1920. 6s. (5s. 1d.)
- Mapping from Air Photographs.** 4s. (3s. 3d.)
- Map Reading and Field Sketching.** Manual. 1921. 3s. (2s. 8d.)
- See also* PROTRACTOR.
- Medical Corps. Royal Army.** *See also* TERRITORIAL FORCE:—
 - Admission to.** Regulations for. Jan. 1921. 2d. (3d.)
 - Standing Orders.** 1914. 1s. (1s.)
 - Do.** Supplement. 1920. 2d. (3d.)
 - Do.** Amendment. July, 1920. 1d. (1½d.)
 - Training.** 1911. 9d. (11d.)
 - Do.** Reprint of Chap. XXII., with Amendments. Stretcher Exercises. July 1922. 2d. (2½d.)
- Medical Department. Army.** Index to Appendices of Reports from 1859 to 1896. 3d. (5d.)
- Medical Diseases in the Tropical and Sub-Tropical War Areas.** *See* DISEASES.

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Medical History. See OFFICIAL HISTORY OF THE WAR.

Medical Service. Army:—

Regulations. 1908. (Reprinted, with Amendments up to Sept. 30, 1914).

4d. (1d.)
Do. Amendments, July 1920. 1d. (2d.)
Do. Do. Feb. 1922. 1d. (2d.)
Do. Do. March 1922. Revised Appendix No. 51. 1d.
(2d.)
Do. Amendment, Appendix No. 14, Sept. 1922. 1d. (1½d.)

Medical Service. Strategical and Tactical Employment of the, as carried out in an Army Corps; with a series of Problems. Translated from the Austrian. 4s. 6d. (3s. 8d.)

Medical Services. Army. Advisory Board for. The Treatment of Venereal Disease and Scabies. First Report. 1904. 1s. 6d. (1s. 5d.); Second Report. 1905. 2s. (1s. 8d.); Third Report. 1905. 1s. (10d.); Final Report. 1908 (out of print).

Medical Services of Foreign Armies. Handbook of. Part I. FRANCE. 6d. (6d.); Part II. GERMANY. 6d. (7d.); Part III. AUSTRIA-HUNGARY. 6d. (7d.); Part IV. RUSSIA. 6d. (6d.); Part V. ITALY. 6d. (6d.); Part VI. THE NETHERLANDS AND BELGIUM. 6d. (6d.)

Mekometer Handbook. 1911. 6d. (7d.)

Mesopotamia. Impressions of, in 1919. By Sir J. Hewett, G.C.S.I., K.C.B. 1920. 9d. (9d.)

Do. Report on. By Sir J. Hewett, G.C.S.I., K.C.B. (With Map.) 1919. 1s. 6d. (1s. 5d.)

Military and other Terms. See SCHOOLS.

Military Lands Acts, 1892 to 1903. Byelaws. See ARTILLERY AND RIFLE RANGES ACT, &c.

Mine Rescue Work on the Western Front. 5s. (4s.)

Mounted Troops (Divisional) Training. June 1915. Provisional. 1d. (2d.)

Musketry Regulations:—

Part I. 1909. (Reprinted, with Amendments, 1914). 1921. 1s. 6d. (1s. 5d.)
Do. Amendments, Nov. 1915. 1d. (2d.)
Do. Amendments, July 1916. Enfield 1914 Pattern Rifle. 1d. (2d.)
Do. Addendum, July 1916. Handbook of the Enfield 1914 Pattern 303-inch Magazine Rifle. 1d. (1d.)
Do. Addendum No. 2, Dec. 1916. Hotchkiss Gun and Lewis Gun Courses. 1d. (2d.)
Do. Addendum No. 3, Feb. 1921. Instructional Course for Webley Pistol. With Appendix—Notes on Pistol Shooting. 2d. (2d.) Amendments. 1d. (2d.)

MILITARY BOOKS, published by Authority—continued.

(As to prices in brackets, see top of page 1.)

Musketry Regulations—continued.

- Part I. Addendum No. 4, April 1917. Annual General Musketry Course, and Musketry Course for Transport Workers' Battalions. 1d. (1d.)
 Do. Addendum No. 5, Bayonet Training. (In the press)
 Do. Addendum No. 6, Feb. 1920. Light Guns (Lewis and Hotchkiss Guns) and Table L (Provisional), 1920. 2d. (2d.)
 Do. Do. Appendix A. 1d. (2d.) Appendix B. 1d. (1d.)
 Do. Addendum No. 7, April 1920. Musketry Courses (Provisional), 1920. Tables A, B and C; Amendments to Part I, Chap. VI. 2d. (2d.)
 Do. and Vickers' Machine-Gun Handbook. Amendments, June 1916. Range Tables for Vickers' Guns for Mark VII. Ammunition. 1d. (1d.)
 Do. Appendix A. 1d. (1d.)
 Do. Addendum No. 7, March 1921. 2d. (2d.)
 Part II. Amendments, Feb. 1921. 1d. (2d.)
 Do. Rifle Ranges and Musketry Appliances. 1910. (Reprinted, with Amendments to Oct. 31, 1914). 4d. (5d.)

See also MACHINE GUN COMPANY TRAINING.

Night Operations. Elementary Training In. 1911. 1d. (2d.)

Number of Troops to the Yard in the Principal Battles since 1850. Memo. on. With opinions of Modern Authorities on limits of extension at the present day. 1884. 9d. (7d.)

Nursing Service. Queen Alexandra's Imperial Military. Regulations for Admission to the. 1921. 2d. (2½d.)

See also HOSPITALS and TERRITORIAL FORCE.

Officers Died in the Great War, 1914-19. Roll of. Part I, Old and New Armies. Part II, Territorial Force. 7s. 6d. (8s. 1d.)

Officers Training Corps:—

- Regulations. 1921. 1s. (1½d.)
 Do. Amendment. March 1922. 1d. (2d.)
 Do. Amendments. April 1922. 2d. (3d.)
 Do. Amendment. June 1922. 2d. (2½d.)
 Do. (Inns of Court.) 1d. (1d.)

Special A.O. March 16, 1908. (Out of print)

Junior Division. Instructions for the Annual Camps. 1921. 6d. (6d.)

Report on the Examination for Certificate "A" held in March, 1920, for Cadets of the Junior and Senior Division. 1s. (1s.)

Orange Free State Topographical Survey, 1905-1911. Report on the. 10s. (8s.)

Smartness on Parade

Nothing contributes more to the smartness of a Field Artillery Battery than the use of "Kiwi"—*The Quality Polish*—for the leather work, whether it be boots, equipment or harness.

The polish is so easily applied, produces such a wonderful gloss with a minimum of effort and softens and preserves the leather.

For Brown boots, leggings or strappings "Kiwi" Tan Stain Polish is, and for years has been, the favourite in the service. Not only does it impart a deep rich colour, but it makes the leather pliable and impervious to damp.

Clean
them
with



"Kiwi" is made in seven varieties of shade. Black, Tan and Patent Leather Polish, Light Tan, Brown, Dark Tan and Ox-Blood Stain Polish. In large tins only. Sold in all Canteens.

"Kiwi"
NEE WEE

The
Quality Boot Polish

OF ALL
DEALERS.



Dye Ken



BY APPOINTMENT

John Haig?

*The Oldest
Distillers
in the World
1627*

QUALITY
WITH
AGE

WHISKY

OCT 7 1926
Presidents of Regimental Institutes
and
Sports Officers

should write for a Catalogue of Sports Goods and
special terms to



LILLYWHITES, L^{td}.
31, HAYMARKET, S.W.1,

*The Ancient House
of Lillywhites.*

before placing their orders for the equipment of their
teams.

LILLYWHITES, Ltd., have a most representative
stock of cricket, football, boxing and hockey requisites
suitable for every climate where gunners are likely
to be stationed, and specialize in boots and athletic
clothing.

Officers requiring goods for their individual
requirements will be given the same terms as those
accorded to Sports Officers, provided they order
through their mess secretary.